West Southall Masterplan Environmental Statement Volume One October 2008

On behalf of:
National Grid Property Limited

CONTENTS

1 INTRODUCTION

1.1	Preamble	1-1
1.2	Purpose of the ES	1-2
1.3	Site Location and Context	1-3
1.4	Proposed Development	1-6
1.5	Legislative Framework for the ES	1-8
1.6	ES Structure	1-11
1.7	Project Team	1-12
1.8	ES Availability	1-13
	References	1-13

2 EIA SCOPE AND METHODOLOGY

2.1	Introduction	2-1
2.2	General Approach to EIA	2-1
2.3	Scoping the EIA	2-2
2.4	Stages of EIA	2-7
2.5	Consultation with Stakeholders	2-8
2.6	Identification of Sensitive Receptors	2-8
2.7	Assessment Criteria	2-9
2.8	Cumulative Effects	2-12
2.9	Mitigation and Enhancement Measures	2-12
2.1	Assessment of Likely Residual Effects	2-12
2.10	Limitations, Constraints and Assumptions	2-12
	References	2-13

3 SITE AND PROPOSED DEVELOPMENT

3.1	Introduction	3-1
3.2	Site Location	3-1
3.3	Current Site Uses	3-2
3.4	Environmental and Other Designations	3-5
3.5	The Vision for West Southall	3-6
3.6	Parameter Plans	3-6
3.7	The West Southall Scheme	3-7
3.8	Proposed Access Routes	3-11
3.9	Proposed Circulation	3-15

3.10	Urban Design	3-17
3.11	Landscape and Public Realm	3-18
3.12	Open Space	3-19
3.13	Sustainability	3-20
	References	3-22

4 ALTERNATIVES AND DESIGN EVOLUTION

4.1	Introduction	4-1
4.2	'Do Nothing' Alternative	4-1
4.3	Site Designations	4-1
4.4	2005 Southall Gas Works Scheme	4-2
4.5	Design Evolution	4-3
	References	4-9

5 PLANNING POLICY CONTEXT

5.1	Introduction	5-1
5.2	National Policy Guidance	5-1
5.3	Regional Planning Policy	5-4
5.4	Local Policy Guidance	5-9
5.5	Level of Compliance of Development with Policies	5-13

6 CONSTRUCTION AND PHASING

6.1	Introduction	6-1
6.2	Planning and Legislative Context	6-1
6.3	Construction Activity and Programme	6-4
6.4	Construction Assessment Methodology	6-10
6.5	Assessment of Effects	6-10
6.6	Mitigation and Enhancement	6-12
6.7	Residual effects	6-19
	References	6-20

7 SOCIO-ECONOMIC EFFECTS

7.1	Introduction	7-1
7.2	Planning Policy Context	7-1
7.3	Methodology and Assessment Criteria	7-5
7.4	Baseline Conditions	7-7
7.5	Assessment of Effects	7-16

7.6	Mitigation Measures	7-21
7.7	Residual Effects	7-22
	References	7-23

8 TRANSPORT AND MOVEMENT

8.1	Introduction	8-1
8.2	Planning Policy Context	8-1
8.3	Assessment Methodology	8-3
8.4	Baseline Conditions	8-8
8.5	Scheme Proposals and Phasing	8-13
8.6	Potential Effects	8-16
8.7	Mitigation Measures	8-19
8.8	Residual Effects	8-21
	References	8-22

9 NOISE AND VIBRATION

9.1	Introduction	9-1
9.2	Planning and Legislative Context	9-1
9.3	Methodology & Significance Criteria	9-4
9.4	Baseline Conditions	9-6
9.5	Assessment of Effects	9-11
9.6	Mitigation and Enhancement	9-18
9.7	Residual effects	9-19
	References	9-19

10 AIR QUALITY

10.1	Introduction	10-1
10.2	Planning and Legislative Context	10-1
10.3	Methodology & Significance Criteria	10-6
10.4	Baseline Conditions	10-16
10.5	Assessment of Effects	10-22
10.6	Mitigation and Enhancement	10-44
10.7	Residual Effects	10-46
	References	10-47

11 TOWNSCAPE AND VISUAL

11.1	Introduction	11-1
11.2	Planning and Legislative Context	11-1
11.3	Methodology and Significance Criteria	11-5
11.4	Baseline Conditions	11-9
11.5	Assessment of Effects	11-14
11.6	Mitigation and Enhancement	11-17
11.7	Residual Effects	11-17
	References	11-35

12 GROUND CONDITIONS AND CONSTRUCTION WASTE

12.1	Introduction	12-1
12.2	Planning and Legislative Context	12-1
12.3	Methodology and Significance Criteria	12-3
12.4	Baseline Conditions	12-6
12.5	Assessment of Effects - Construction	12-15
12.6	Assessment of Effects - Principal Assessment Year	12-20
12.7	Mitigation and Enhancement	12-22
12.8	Residual Effects	12-24
	References	12-27

13 THE WATER ENVIRONMENT

13.1	Introduction	13-1
13.2	Planning and Legislative Context	13-1
13.3	Methodology & Significance Criteria	13-4
13.4	Baseline Conditions	13-6
13.5	Assessment of Effects	13-10
13.6	Mitigation and Enhancement	13-15
13.7	Residual Effects	13-20
	References	13-23

14 ECOLOGY

14.1	Introduction	14-1
14.2	Planning and Legislative Context	14-1
14.3	Methodology & Significance Criteria	14-6
14.4	Baseline Conditions	14-10
14.5	Environmental Effects and Mitigation Measures	14-19

14.6	Enhancement	14-27
14.7	Monitoring	14-29
	References	14-29

15 ARCHAEOLOGY

15.1	Introduction	15-1
15.2	Planning Policy Context	15-1
15.3	Methodology	15-2
15.4	Baseline Conditions	15-3
15.5	Assessment of Archaeological Potential	15-8
15.6	Development Effects	15-10
15.7	Mitigation	15-11
15.8	Likely Significant Effects	15-15
	References	15-15

16 BUILT HERITAGE

16.1	Introduction	16-1
16.2	Planning Policy Context	16-1
16.3	Methodology	16-2
16.4	Baseline Conditions	16-4
16.5	Assessment of Effects	16-8
16.6	Mitigation	16-10
16.7	Residual Effects	16-10
	References	16-11

17 MICROCLIMATE

17.1	Introduction	17-1
17.2	Planning and Legislative Context	17-1
17.3	Methodology & Significance Criteria	17-3
17.4	Baseline Conditions	17-4
17.5	Assessment of Effects	17-5
17.6	Mitigation and Enhancement	17-15
17.7	Residual Effects and Enhancements	17-16
	References	17.19

18 OPERATIONAL WASTE

18.1	Introduction	18-1

18.2	Planning and Legislative Context	18-1
18.3	Methodology & Significance Criteria	18-3
18.4	Baseline Conditions	18-4
18.5	Assessment of Effects	18-5
18.6	Mitigation and Enhancement	18-9
18.7	Residual effects	18-11
	References	18-11

19 CUMULATIVE EFFECTS

19.1	Introduction	19-1
19.2	Methodology	19-1
19.3	Description of Consented Development Schemes	19-3

20 MITIGATION AND RESIDUAL EFFECTS

GLOSSARY

APPENDICES (Refer to ES Volume 2 and 3)

6.1	Framework Construction Environmental Management Plan
7.1	Primary and Secondary Schools within one mile of the site
9.1	Noise and Vibration Units, Standards and Guidance
9.2	Model Input
9.3	Road Traffic Noise Assessment
10.1	Calculation of Annualisation Factor
10.2	Future Predictions of NOx and NO2
10.3	Model Verification
10.4	Modelled Rail Emissions
11.1	Townscape and Visual Methodology and Significance Criteria
11.2	Comparative View Preparation
11.3	Baseline Character Area Descriptions
11.4	Townscape Assessment
11.5	Visual Impact Schedule
12.1	Ground Conditions Report
13.1	Water Resources Baseline Assessment
13.2	West Southall Flood Risk Assessment
14.1	Extended Phase One Habitat Survey
14.2	Bat Survey Report
14.3	Water Vole Survey Report

14.4 Reptile Survey Report
14.5 Entomological Study
14.6 Arboricultural Survey Report
14.7a River Corridor Survey
14.7b River Habitat Survey
14.8 Ecological Mitigation Strategy
15.1 Archaeological Desk-based Assessment
16.1 Built Heritage Assessment
17.1 Assessment of Solar Shading on Principal Public Realm
17.2 Pedestrian Wind Conditions for the West Southall Masterplan

1 INTRODUCTION

1.1 Preamble

1.1.1 This Environmental Statement (ES) has been prepared by RPS on behalf of National Grid Property Limited (NGP) (herein referred to as 'the Applicant'), to accompany a planning application for the comprehensive redevelopment of the former Southall gasworks site ('the Site'). The proposed development known as 'West Southall' ('the Scheme') comprises a mix of residential, retail, leisure, community and other uses. The Applicant has prepared the full Scheme to illustrate how the Site will be developed in accordance with a defined Development Specification and set of Parameter Plans; these establish the thresholds for the development that will inform the detailed design of individual zones and other components of the Scheme. Future reserved matters applications will be consistent with these parameters.

1.1.2 The Applicant has sought approval by means of an Outline Planning Permission for the 'Main Site', with details of the accesses submitted in full. The application is being submitted to both the LB Ealing and the LB Hillingdon as the Application Site straddles the borough boundaries.

1.1.3 The application comprises as follows:

Main Site

1.1.4 An Outline Planning Application for a comprehensive mixed-use development on the former Southall gasworks site (site area 33.9ha). This will comprise up to 320,000m2 of residential floor space consisting of a maximum of 3,750 residential units (apartments, maisonettes and townhouses); retail development in the full range of Class A1, A2, A3, A4 and A5 uses; a cinema; a hotel with conference and banqueting facilities; a primary school and health centre; a sports pavilion; offices and studios; open space including a central public park and other areas of formal and informal recreation; parking for the residential, retail and other uses on Site (to be provided on street, in building undercrofts, and in two multi-storey car parks); an energy centre and associated infrastructure.

1.1.5 Plans to demolish properties contained within The Crescent off South Road, together with six terrace houses on the east side of Randolph Road and one property on Grange Road, in order to facilitate a new Eastern Access to the Site, are also attached to this application.

1.1.6 All other matters regarding siting, design, landscaping and external appearance are reserved for future consideration, although the Design and Access Statement (DAS) accompanying the application contains further details on these matters in accordance with the current Planning Regulations.

1.1.7 Details of three vehicular accesses and five additional pedestrian links to Beaconsfield Road and its residential side roads to the north of the Site are submitted for approval with the Outline Application, together with full details of the following access routes:

Pump Lane Bridge (Vehicular)

1.1.8 Pump Lane Bridge (site area 5.5ha) will link the West Southall Site to the Hayes By-Pass (A312) via Pump Lane. The access comprises a two-lane road and bridge over the Grand Union Canal (Paddington Branch) and Yeading Brook with associated arrangements for drainage and a flood relief pond.

Minet Country Park Bridge (Pedestrian)

1.1.9 The Minet Country Park Bridge (site area 0.6ha) will provide pedestrian and cycle access and egress to the Site and Minet Country Park.

Springfield Road Bridge (Pedestrian)

1.1.10 The Springfield Road Bridge (site area 0.6ha) will provide pedestrian and cycle access and egress to the Springfield Road, the Brook Industrial Estate, Yeading Football Club and the northern entrance to Minet Country Park.

Eastern Access (Vehicular)

1.1.11 The Eastern Access (site area 1.4 ha) will provide an eastern link road between the West Southall Site and South Road, including reconfiguration of the existing road and junction and a widening of the existing road bridge.

Widening of South Road

1.1.12 Off-site works include the widening of South Road across the railway line for the creation of a bus lane.

1.2 Purpose of the ES

1.2.1 The EIA Regulations require the ES to report the likely significant effects of the proposed development and forms a significant element of the information that will be used by LB Ealing and LB Hillingdon in their determination of the planning applications. The ES draws together an assessment of the likely significant environmental effects of the Scheme in a systematic way. This ensures that both adverse (negative) and beneficial (positive) effects, and the options for avoiding, reducing, off-setting or enhancing such effects, are properly understood by the planning authorities, consultation bodies and the public when considering the planning applications.

1.2.2 In addition to the ES, the planning application is supported by the following documents:

- Application Drawings, including the red line plans for the application and engineering details of access and other 'fixed' components of the design.
- Design and Access Statement (DAS).
- Planning Statement.
- Statement of Community Involvement.
- Housing Strategy.
- Regeneration Strategy.
- Retail Assessment.
- Energy Strategy.

- Sustainability Statement.
- Planning Advice for Developments near Hazardous Installations (PADHI) Report.
- Framework Construction Environmental Management Plan (Appended to this ES at Appendix 6.1).
- Health Impact Assessment (Appended to this ES at Appendix 7.2).
- Transport Assessment & Framework Travel Plan (Appended to this ES at Appendix 8.1 and Appendix 8.2).
- Remediation Strategy (Appended to this ES at Appendix 12.2).
- Flood Risk Assessment (Appended to this ES at Appendix 13.5 and Appendix 13.6).
- General Management Strategy

1.3 Site Location and Context

1.3.1 The Site is located within LB Ealing in the heart of the West London Sub Region and close to Southall to the north and east and Hayes town centre to the west (see Figure 1.1). The wider 'Study Area' including the Main Site, Proposed Accesses and land required for drainage and flood compensation within LB Hillingdon comprises approximately 42ha (104 acres), whilst the Main Site comprises 33.9 ha (c.84 acres). The area of the proposed development excludes the part of the gasholder compound in the south of the Site which is to be retained. This operational compound presently includes three gasholders (or gasometers). Two of these gasholders will be decommissioned and removed prior to commencement of the Scheme, such that the eastern part of the compound will become available for development. The remaining rigid central gasometer, underground pipework and associated infrastructure managed by National Grid Gas will be retained. This necessitates the preservation of a radial 'safety zone' and fixed easements above several pipelines within the Site where physical development will not take place (please see the PADHI Report accompanying this application for more information).

1.3.2 A five storey Grade II listed brick Water Tower, converted to residential uses, is situated in the eastern corner of the Site. This building, its boundary walls, two cottages and various outbuildings associated with the Water Tower will be retained and are excluded from the Scheme.

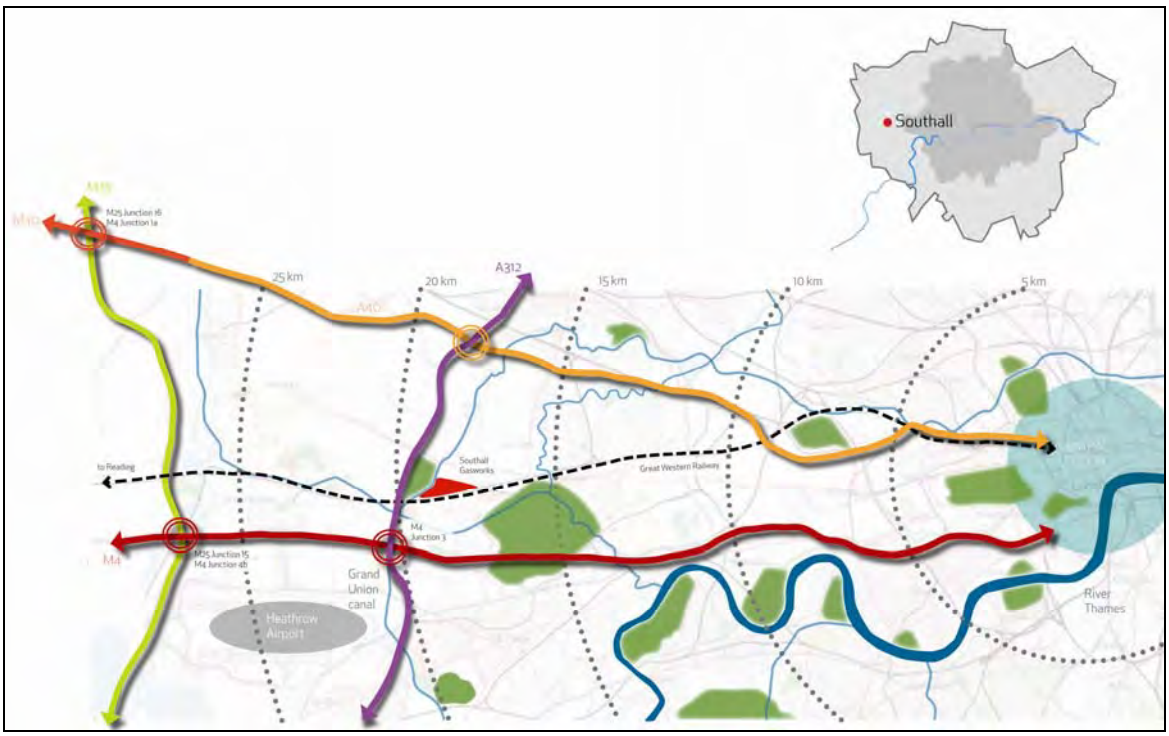


Figure 1.1 Site Location Map

Note: Not to Scale

1.3.3 The main features and amenities of the Site and surrounding area are shown in Figure 1.2. Currently, much of the Site is leased to Purple Parking Ltd for storage, preparation and 'off-site' surface parking of motor vehicles for Heathrow Airport. The rest of the Site contains areas of vacant land previously occupied by the gasworks site together with other former industrial land-uses, but has largely been cleared of buildings and other structures. Two warehouse/ workshop type buildings exist along the northern edge of the Site.

1.3.4 The Site is bounded to the south by the London Paddington to Bristol railway line, to the west by the Grand Union Canal (Paddington Branch), to the north by houses fronting Beaconsfield Road (and adjoining roads), and to the east by South Road and The Crescent. The M4 motorway lies to the south, generally parallel to the railway, with Junction 3 (the A312 intersection) approximately 1.2km to the south west of the Site. At its closest point, the A312 Hayes Bypass is located approximately 230m to the west of the Site, beyond Minet County Park (see Figure 1.1).

1.3.5 The Main Site falls wholly within LB Ealing, however, the Grand Union Canal ('the Canal') marks the boundary with the London Borough of Hillingdon, which encompasses land to the west that will be required for the construction of access links (both vehicular and pedestrian) to the Site together with a flood alleviation pond.

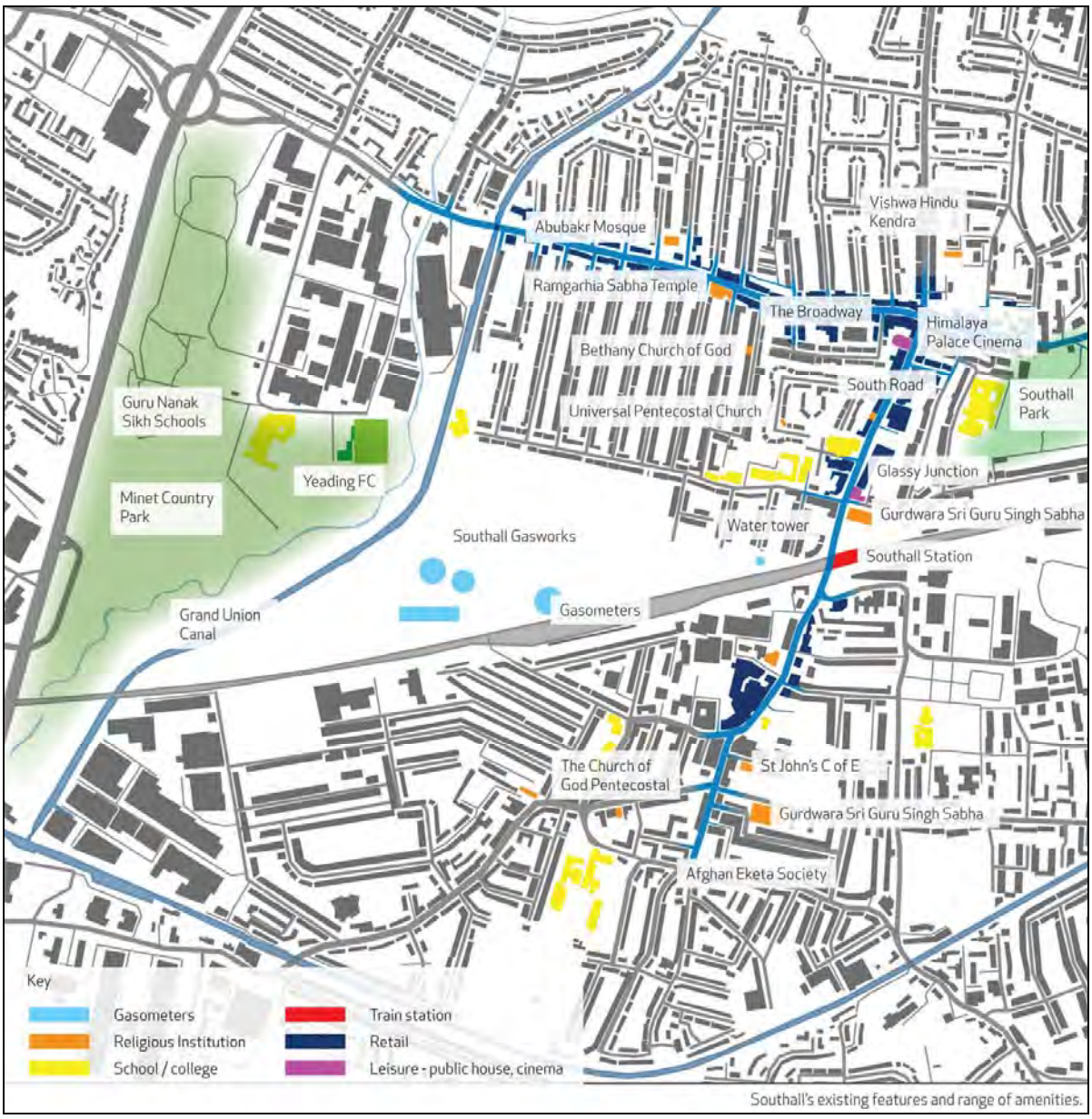


Figure 1.2 Features and Existing Amenities on the Site and in the Surrounding Area.

1.3.6 The Site is located within a wider urban conurbation, comprising mainly residential, retail and employment uses, with Southall (LB Ealing) to the north and northeast, Norwood Green (LB Hounslow) to the southeast and Hayes (LB Hillingdon) to the west. The Minet Country Park, established in 2001, provides extensive open space to the west of the Canal. The Yeading Brook, approximately 50m from the site boundary, runs to the west of, and generally parallel to, the Canal. The towpath of the Canal is also promoted as a recreational route, forming part of the Grand Union Walk, Hillingdon Trail and Blue Ribbon Network.

1.3.7 The existing Site is characterised by extensive areas of hard standing used for temporary vehicle parking for Heathrow Airport, with other areas used for longer-term car storage. A derelict recreational area exists within the south-eastern corner of the Site. This was previously used as a cricket pitch by the gasworks employees. Tall, corrugated steel panels secure much of the Site boundary, including the extensive canalside boundary (approximately 1km long). Elsewhere, brick walls or chain-link fencing associated with the gasworks complete the boundary security.

1.3.8 Vegetation is sparse within the Site and comprises predominantly semi-mature trees and scrub along the canal edge and northern boundary, with more mature poplar trees present around the vicinity of the derelict recreational area.

1.3.9 A more extensive description of the Site and surrounding environs is provided in Chapter 3: Site Proposed Scheme.

1.4 Proposed Development

Background to the Application

1.4.1 In 2005, Secondsite Property Holding Limited (now National Grid Property Ltd) and Castlemore Securities Limited submitted an outline planning application to LB Ealing for the comprehensive redevelopment of the Site. Separate applications were also submitted to LB Ealing and LB Hillingdon for 'Springfield Link Road', 'Minet Footbridge', 'Pump Lane Link Road' and the 'Eastern Access'. These applications are herein referred to as the '2005 Scheme'.

1.4.2 Planning Permission for the proposed new Pump Lane Link Road was refused by LB Hillingdon on 30 November 2005, and similar refusals followed for the proposed pedestrian bridge on 7 December 2005 and for the Springfield Link Road on 6 February 2006. These refusals were for a number of reasons, including: appropriateness of development in Green Belt land; flood risk; traffic and highways safety; impacts on the ecological value of the Yeading Brook and Grand Union Canal river corridors and on Minet Park; and, the loss of existing sports pitches. Associated applications for the construction of a flood storage lagoon and reserved matters applications tied to an extant outline planning permission for the construction of the Pump Lane Road Link were also refused. Subsequent appeals against these decisions were lodged. However, the appeals were withdrawn, in favour of pursuing a revised scheme.

1.4.3 LB Ealing did not determine the outline application for the Main Site. However, it was apparent that, whilst generally supportive to the principles of the development, there were concerns with the design, layout and density, configuration of the retail and the nature and quantum of open space proposed. The main outline application was withdrawn in November 2006.

1.4.4 In response to the comments raised by the Councils, the Applicants commenced a full review of the design of the development and appointed a new lead master planning architect, Make. New transport consultants, Savell Bird and Axon, were also appointed to re-examine the transport solutions for the Site and Beyond Green were appointed to advise on sustainability issues.

1.4.5 A full description of the 2005 Scheme and the application process is presented in Chapter 4: Alternatives and Design Evolution.

Current Applications

1.4.6 The West Southall proposals have been designed to create a new high quality urban environment that would transform the current area and complement the role and function of Southall town centre. The principal objectives of the Scheme and its interrelationship with the existing Southall urban area (as set out in the Design and Access Statement -DAS) are as follows:

- Providing a range of amenities to enhance Southall as a place to live and visit;
- Encouraging a sustainable lifestyle for all;
- Offering apartments, maisonettes and townhouses in addition to predominant existing terraced and semi-detached housing stock;

- Creating flexible and resilient ground floor space that can accommodate a variety of fine grain uses;

- Complementing the specialist shops with multiple retailers;

- Providing a defined public park with recreational facilities that are not provided by the adjacent Minet Country Park;

- Developing an active canal frontage as a destination; and

- Creation of civic space alongside vibrant streets.

Other key features of the proposed Scheme include:

- Remediation and productive reuse of a currently contaminated, largely vacant and publicly inaccessible Site;

- Provision of high quality, mixed tenure housing, suitable for a range of occupancy, from single persons to large families and including a significant proportion of affordable housing;

- High quality landscaping and enhancements to ecology and biodiversity;

- Provision of retail and employment uses with the potential for the creation of a substantial number of jobs, many of which will be available to local people;

- Various new community facilities, including a new primary school, health centre, a large public square, central park and various play areas and recreational facilities;

- On-site renewable energy; and

- Improved transport linkages, including new roads, public transport, pedestrian and cycling routes.

1.4.7 As the application for the Main Site is in Outline, the final layout, siting, phasing and quantum of development will be the subject of reserved matters applications. However, in order to provide sufficient certainty about the nature and magnitude of potential environmental effects, and to comply with the requirements of the Planning and Compulsory Purchase Act 2004 [(1.1)] and accompanying Circular of August 2006 (DCLG Circular 01/2006) [(1.2)] together with various recent case law precedents for EIA of Outline Applications, a Development Specification and series of Parameter Plans have been developed. These collectively define the maximum and, where necessary, minimum thresholds of the proposed development. The Parameter Plans are described in more detail in Chapter 3: Site and Proposed Development in this ES. However, in summary the main land uses of the Scheme, and the associated maximum thresholds, are provided in Table 1.1. Figure 1.3 presents the illustrative masterplan, which shows one way in which the proposed development may be built out within the Parameters.

Table 1.1 Maximum Floorspace Thresholds by Use

Use	Maximum Gross External Area (GEA) (m^2)
Residential	3,750 units/ 320,000m^2 (3400 units minimum)
Non-Food Retail	14,200
Supermarket	5,850
Central Multi-Storey Car Parking	12,150 (380 spaces)

Use	Maximum Gross External Area (GEA) (m^2)
Café/Restaurants (Class A3-A5)	1,750
Hotel	9,650
Conference/Banqueting	3,000
Cinema	4,700
Health Centre	2,550
Education	3,450
Office/Studio	3,500
Energy Centre	600
Sports Pavilion	390
Gateway Place Multi-storey Car Park	12,300 (439 spaces)
TOTAL	**394,090**

Note: The table excludes several infrastructure elements for which planning consent is sought in principle including: plant; on site utilities such as substations; waste storage; any built structures proposed for use as car parking; service yards and any external ground level floor; hard landscaping; footways and roads.

1.4.8 The remediation and development of the Site would be carried out over approximately 15 years (from 2009/10 to 2024/25). This will take place as a continuous programme, as illustrated by the Phasing Plan (shown as Figure 6.1 and described in Chapter 6: Construction and Phasing). However, some flexibility is required to respond to changing market conditions and other future influences. Therefore, whilst the illustrative Phasing Plan presents the most likely way in which the Site and access arrangements will be built-out, the exact sequence and timing may differ.

1.4.9 A full description of the West Southall Scheme is presented in Chapter 3: Site and Proposed Scheme.

1.5 Legislative Framework for the ES

1.5.1 The need for an EIA of proposals to develop the Site was first identified in a document entitled 'Former Southall Gasworks, Southall – Development Principles Draft Supplementary Guidance' issued jointly by the Mayor of London and LB Ealing in December 2003 (1.4).

1.5.2 This ES has been prepared in accordance with the requirements of the Town and Country Planning (Environmental Impact Assessment) (Amendment) (England) Regulations 2008 (SI No 2093) (hereinafter referred to as the EIA Regulations)(1.3). The Development falls under 'urban development projects' category 10b of Schedule 2, as it exceeds the threshold of 0.5 ha and has the potential to generate 'significant effects on the environment'.

1.5.3 The scope of the EIA covers twelve main technical topic areas, namely: Construction and Phasing; Socio-economics Effects; Transport and Movement; Noise and Vibration; Air Quality; Townscape and Visual Effects; Ground Conditions; the Water Environment; Ecology; Archaeology; Built Heritage; Microclimate (Solar and Wind); and, Operational Waste.

1.5.4 The ES structure, content and methodology was set out in the Scoping Report prepared by RPS and submitted to both Councils on 21st November 2007. This comprehensive coverage of the EIA study has subsequently been confirmed as appropriate by LB Hillingdon and LB Ealing through their respective Scoping Opinions of 18 December 2007 and 12th March 2008.

1.5.5 Both the Scoping Report and the resulting Opinions from LB Ealing and LB Hillingdon are reproduced at Appendix 2.1 to this ES. The process of EIA scoping is decribed more fully in Chapter 2: EIA Scope and Methodology.

1.5.6 The following requirements, defined in Section 2 of the DCLG Circular 01/2006 (1.2), came into force on 10 August 2006. This guidance prescribes the minimum information that must be contained in a Design and Access Statement (DAS) supporting an Outline Application but also, by default, the scheme information that will be assessed through the EIA process:

"*With an application for outline planning permission detailed consideration will always be required on the use and amount of development. In addition, even if layout, scale and access are reserved, an application will still require a basic level of information on these issues in the application. As a minimum, therefore, applications should always include information on*:

- *Use – the use or uses proposed for the development and any distinct development zones within the site identified.*
- *Amount of development – the amount of development proposed for each use.*
- *Indicative layout – an indicative layout with separate development zones proposed within the site boundary where appropriate.*
- *Scale parameters – an indication of the upper and lower limits for height, width and length of each building within the site boundary.*
- *Indicative access points – an area or areas in which the access point or points to the site will be situated"*

1.5.7 This information is defined within the DAS for the illustrative master plan and in a set of Parameter Plans and a written Development Specification, as described within Chapter 3: Site and Proposed Scheme in this ES.

1.5.8 In conformity to the EIA Regulations this ES reports on the findings of a systematic assessment of any likely "significant environmental effects" of the proposed development. To this end, and as required by the EIA Regulations, the ES includes the information referred to in Part II of Schedule 4, as presented below:

- A description of the development comprising information on the site, design and size of the development.
- A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects.
- The data required to identify and assess the main effects which the development is likely to have on the environment.
- An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.
- A non-technical summary of the information provided under paragraphs 1 to 4 of this Part.

1.5.9 In addition, the ES also contains such information as outlined in Part I of Schedule 4 of the EIA Regulations; that which is reasonably required to assess the environmental effects of the development and which the applicant can, having regard in particular to current knowledge and methods of assessment, reasonably be required to compile. Table 1.2 directs the reader to the relevant section of the ES where this information can be found.

Table 1.2 Content of the ES as required by Part I and Part II

Description of the development, including in particular:		**Chapter where information can be found**
1	Description of the development, including in particular-	
(a)	a description of the physical characteristics of	Chapter 1: Introduction

Description of the development, including in particular:		Chapter where information can be found
	the whole development and the land use requirements during the construction and operational phases;	Chapter 3: Site and Proposed Development Chapter 6: Construction and Phasing
(b)	a description of the main characteristics of the production processes, for instance, nature and quantity of materials used;	Chapter 3: Site and Proposed Development Chapter 6: Construction and Phasing
(c)	an estimate, by type and quantity, of expected residues and emissions, (Water, air and soil pollution, noise, vibration, light, heat, radiation, etc) resulting from the operation of the proposed development.	Chapter 9: Noise and Vibration Chapter 10: Air Quality Chapter 12: Ground Conditions Chapter 13: The Water Environment Chapter 17: Operational Waste
2.	An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.	Chapter 4: Alternatives and Design Evolution
3.	A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, flora, fauna, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscapes and inter-relationship between the above factors.	Chapter 7: Socio-economics Effects Chapter 8: Transport and Movement Chapter 9: Noise and Vibration Chapter 10: Air Quality Chapter 11: Townscape and Visual Effects Chapter 12: Ground Conditions Chapter 13: The Water Environment Chapter 14: Ecology Chapter 15: Archaeology Chapter 16: Built Heritage Chapter 17: Microclimate Chapter 18: Operational Waste Chapter 19: Cumulative Effects Chapter 20: Mitigation and Residual Effects
4.	A description of the likely significant effects of the Development on the environment, which should cover the direct and any indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects of the development, resulting from:	
(a)	the existence of the Development	Chapter 7: Socio-economics Effects Chapter 8: Transport and Movement Chapter 11: Townscape and Visual Effects Chapter 17: Microclimate Chapter 19: Cumulative Effects Chapter 20: Mitigation and Residual Effects
(b)	the use of natural resources.	Chapter 3: Proposed Development Chapter 11: Townscape and Visual Effects Chapter 12: Ground Conditions Chapter 13: The Water Environment Chapter 14: Ecology Chapter 19: Cumulative Effects Chapter 20: Mitigation and Residual Effects
(c)	the emission of pollutants, the creation of nuisances and the elimination of waste; and the description by the applicant of the forecasting methods used to assess the effects on the environment.	Chapter 3: Proposed Development Chapter 5: Socio-economics Effects Chapter 8: Transport and Movement Chapter 9: Noise and Vibration Chapter 10: Air Quality Chapter 11: Townscape and Visual Effects Chapter 12: Ground Conditions Chapter 13: The Water Environment Chapter 14: Ecology Chapter 18: Operational Waste Chapter 19: Cumulative Effects Chapter 20: Mitigation and Residual Effects
5.	A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.	As above.
6.	A non-technical summary of the information provided under Paragraphs 1-5 of this Part.	Non-Technical Summary (NTS)
7.	An indication of any difficulties (technical	Chapter 2: EIA Scope and Methodology, and each

Description of the development, including in particular:		Chapter where information can be found
	deficiencies or lack of know-how) encountered by the Applicant in compiling the required information.	Chapter of the ES where relevant.
PART II		
1.	A description of the development comprising information on the site, design and size of the development.	Chapter 3: Site and Proposed Development
2.	A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects	Chapter 5: Socio-economics Effects Chapter 8: Transport and Movement Chapter 9: Noise and Vibration Chapter 10: Air Quality Chapter 11: Townscape and Visual Effects Chapter 12: Ground Conditions Chapter 13: The Water Environment Chapter 14: Ecology Chapter 15: Archaeology Chapter 16: Built Heritage Chapter 17: Microclimate Chapter 18: Operational Waste Chapter 19: Cumulative Effects Chapter 20: Mitigation and Residual Effects
3.	The data required to identify and assess the main effects which the development is likely to have on the environment.	Chapter 5: Socio-economics Effects Chapter 8: Transport and Movement Chapter 9: Noise and Vibration Chapter 10: Air Quality Chapter 11: Townscape and Visual Effects Chapter 12: Ground Conditions Chapter 13: The Water Environment Chapter 14: Ecology Chapter 15: Archaeology Chapter 16: Built Heritage Chapter 17: Microclimate Chapter 18: Operational Waste Chapter 19: Cumulative Effects
4.	An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects.	Chapter 4: Alternatives and Design Evolution
5.	A non-technical summary of the information provided under paragraphs 1 to 4 of this Part	Non-Technical Summary (NTS)

1.6 ES Structure

1.6.1 The ES draws on information and material provided by the Applicant's consultant team. It comprises a series of separate chapters supported, where appropriate, by the relevant technical appendices of the ES (Volume II). In total there are three volumes to the ES, the details of which are set out below:

Environmental Statement (Volume I)

1.6.2 Following this Introduction Chapter, the ES is structured as follows:

Chapter 2: ES Scope and Methodology, provides an outline of the structure of the ES explaining the pre-planning consultation, scoping process and the methods used to assess these effects, together with the criteria assigned to evaluate their significance.

Chapter 3: The Site and Proposed Development, provides a description of the Application Site and proposed development with reference to the Parameter Plans and Development Specification.

Chapter 4: Alternatives and Design Evolution, examines the alternatives to the scheme and the design evolution of the proposed Scheme, which was informed by the EIA process, ongoing design interations and consultations.

Chapter 5: Planning Policy Context, outlines the national, regional and local planning and strategic policy relevant to the West Southall Scheme.

Chapter 6: Construction and Phasing describes an indicative sequence for development and construction of the West Southall Site. It provides an overview of potential effects as well as a series of standards, mitigation measures and procedures that will be observed through the construction process in order to minimise or reduce any significant or adverse environmental impacts.

Chapter 7-18: Technical Chapters: Provide the full assessment of potential environmental effects and their mitigation on a topic-by-topic basis.

Chapter 19: Cumulative Effects, considers the combined effect of the proposed Scheme with other development in and around LB Ealing and LB Hillingdon.

Chapter 20: Summary of Mitigation and Residual Effects, sets out a summary of the mitigation measures identified in the preceding chapters to be implemented across the Scheme and the residual effects following the implementation of these proposed measures.

Environmental Statement Technical Appendices (Volume II)

1.6.3 Volume II of the ES provides a set of technical appendices, including separate reports, surveys and data that have informed the EIA process to-date, such as the Transport Assessment (TA). This information is supplied as a separate volume to prevent the main ES becoming excessively long and cumbersome.

Environmental Statement Non-Technical Summary (NTS)

1.6.4 The NTS presents a summary of the ES in non-technical language, and provides a concise summary of the development proposals, potential environmental effects and measures envisaged to prevent, reduce and where possible offset any significant adverse effects as well as the residual impacts.

1.7 Project Team

1.7.1 The Applicant's Project Team, who have contributed to the design and EIA process, comprise:

Table 1.3 Project team

Role	**Company**
Applicant	National Grid Property Ltd
Architect and Master Planners	Make
Planning Consultant	RPS
Landscape Consultants	Lovejoys
Sustainability Strategists	Beyond Green
Civil & Structural Engineers	White Young Green (WYG)
Geotechnical Consultant	WYG
Retail Consultants	RPS
Utilities and Drainage consultants	WYG
EIA Chapters	
EIA Coordinators and ES Author	RPS
Construction and Phasing	WYG
Socio-economic Consultant	Hunt Dobson Stringer
Transport Engineer	Savell Bird and Axon (SBA)

Role	Company
Noise Consultant	RPS
Air Quality Consultant	RPS
Townscape and Visual Impact Consultant	RPS
Ground Conditions Consultant	WYG
Water Environment and Flood Risk Consultant	WYG
Ecology Consultant	WYG
Archaeology Consultants	Museum of London Archaeological Services (MoLAS) and RPS
Built Heritage	RPS
Microclimate – Solar Shading	RPS
Microclimate – Wind	RWDI Anemos
Operational Waste	WYG

1.8 ES Availability

1.8.1 The Non-technical Summary of this ES is available free of charge. Additional copies of the ES (Volume I) and Technical Appendices (Volume II) can be purchased at a cost of £300 each (excluding postage and packaging) from RPS Planning, 1st Floor West, Cottons Centre, Cottons Lane, London SE1 2QG.

1.8.2 The ES and Planning Application is also available for viewing by the public during normal office hours at the Development Services Department of the London Borough of Ealing or the Planning Department of the London Borough of Hillingdon, at the following addresses:

Development Services Ealing Borough Council Percival House 14-16 Uxbridge Road London W5 2HL	Development Control Hillingdon Borough Council 3N/04 Civic Centre High Street Uxbridge Middlesex UB8 1UW

1.8.3 Comments on the Application and Environmental Statement should be forwarded to the London Borough of Ealing and London Borough of Hillingdon at the addresses above.

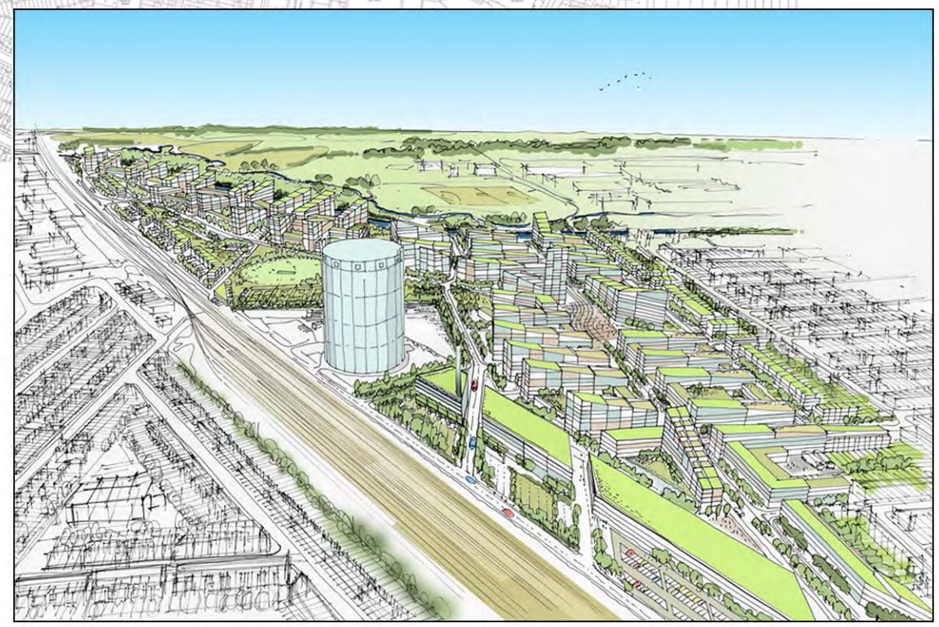
References

1.1 HMSO (2004) Planning and Compulsory Purchase Act.

1.2 Depart of Communities and Local Government (2006) Circular 01/2006. August 2006.

1.3 HMSO (2008) Town and Country Planning (Environmental Impact Assessment) (Amendment) (England) Regulations 2008 (SI No 2093).

1.4 London Borough of Ealing and The Mayor of London (2003) Former Southall Gasworks, Southall – Development Principles Draft Supplementary Guidance. December 2003.



Reproduced from Make, 2008

RPS

Date:	28.02.08	Scale:	NTS	Rev:	
Job No:	JLD0211	Drawn:	RD	Checked:	CC

Project:
West Southall'

Figure No:
Figure 1.3

Title:
Masterplan Layout

www.rpsgroup.com

Drawing Ref:

2 ENVIRONMENTAL STATEMENT SCOPE AND METHODOLOGY

2.1 Introduction

2.1.1 This chapter sets out the scope and methodology adopted in the EIA. It explains the scoping process undertaken in order to identify potential significant environmental effects, the baseline assumptions, and methods used to assess the effects, together with the criteria assigned to evaluate their significance. Although this chapter describes general criteria for assessment, any specific criteria applied to the individual environmental topics are described in the corresponding technical chapters.

2.1.2 The environmental effects of the Proposed Development have been predicted for each relevant environmental topic (e.g. ecology, landscape, noise etc) by comparing baseline environmental conditions (i.e. the situation without the proposed West Southall Scheme) with the conditions that would prevail were the whole development to be constructed and occupied (the 'Principal Assessment Year'). Because of the extended duration of the construction programme, the likely condition of the Site and adjoining areas at five year intervals throughout the remediation and construction programme (the 'Interim Years') have also been considered for many topics.

2.1.3 The environmental effects of the proposed Scheme are predicted in relation to environmental receptors, including people (residents of buildings, users of facilities etc), built resources (e.g. listed buildings) and natural resources (e.g. sites of ecological interest).

2.2 General Approach to EIA

EIA Regulations

2.2.1 As described in Chapter 1, the ES has been prepared to comply with the EIA regulations [(2.1)] which implement Council Directive No. 85/337/EEC as amended by Council Directive No. 97/11/EC [(2.2)]. Other good practice guidance has been considered for the EIA and includes the following:

- Town and Country Planning (Environmental Impact Assessment) (Amendment) (England) Regulations 2008 (SI No 2093) [(2.3)];
- Environmental Impact Assessment – A Guide to Good Practice and Procedures: A consultation paper, ODPM, 2006 [(2.4)];
- Guidelines for Environmental Impact Assessment, Institute of Environmental Management and Assessment (IEMA), 2004 [(2.5)];
- Environmental Impact Assessment – A Guide to Procedures, Office of the Deputy Prime Minister (ODPM), 2001[(2.6)];
- Circular 02/99 – Environmental Impact Assessment, Department of Environment, Transport and the Regions (DETR) [(2.7)];
- Note on EIA Directive for Local Planning Authorities (1999 EIA Regulations) ODPM [(2.8)]; and
- Preparation of Environmental Statements for Planning Projects that require Environmental Assessment – A Good Practice Guide, Department of the Environment (DoE), 1995 [(2.9)].

2.3 Scoping the EIA

Technical Scope

2.3.1 Within this ES, the significant environmental effects of the proposed Scheme have been predicted for each relevant environmental topic and compared against the baseline environmental conditions. This assessment applies to specific effects associated with the demolition and construction phase and at completion/occupation of the West Southall Scheme.

2.3.2 The range of environmental topics addressed within the EIA is referred to as the 'technical scope'. The approach to the EIA and the range of various technical studies required to support the assessment process were identified having regard to Part I and II of Schedule 4 of the EIA Regulations 2008 [(2.1)]. This specifies a range of potential environmental, socio-economic and physical conditions or issues that may be altered by a development and dictates that the significance of such effects should be determined as part of an EIA process. These include effects on human beings, flora, fauna, soil, water, air, climate, landscape, material assets and cultural heritage, and the interaction between these effects. With regard to urban development projects, the DETR Circular 02/99 [(2.4)] also advises that:

"in addition to the physical scale of such developments, particular consideration should be given to the potential increase in traffic, emissions and noise"

Scoping Report

2.3.3 A Scoping Report prepared by RPS in November 2007 identified the topics to be assessed through the EIA process and presented within the ES, and also provided the rationale for other topic areas to be 'scoped out' from the EIA, on the grounds that the proposed development would have no influence on these. The Scoping Report also took account of the outline nature of the Scheme for the Main Site and the range of effects that might occur within the development thresholds set by the Parameter Plans, described in Chapters 3: Site and Proposed Scheme. As a result of this exercise, an appropriate scope for the EIA was determined as summarised in Table 2.1 below.

Table 2.1 Environmental topics included within the West Southall ES

Environmental Issue	Main West Southall Site	Eastern Access (South Rd)	Pump Lane Link	Minet Footbridge	Springfield Road Footbridge
Construction and Phasing	✓	✓	✓	✓	✓
Planning Policy Context	✓	✓	✓	✓	✓
Socio-Economic Effects	✓	x	x	x	x
Transport and Movement	✓	✓	✓	✓	✓
Noise and Vibration	✓	✓	✓	x	x
Air Quality	✓	✓	✓	x	x
Townscape and Visual Effects	✓	✓	✓	✓	✓
Ground Conditions	✓	✓	✓	✓	✓
The Water Environment	✓	✓	✓	✓	✓
Ecology	✓	x	✓	✓	✓
Archaeology and Built Heritage	✓	✓	✓	✓	✓
Microclimate (Wind)	✓	x	x	x	x
Microclimate (Solar Shading)	✓	x	✓	✓	✓
Operational Waste	✓	x	x	x	x
Electromagnetic radiation	x	x	x	x	x
Telecommunications	x	x	x	x	x
Aviation Interference	x	x	x	x	x
Climate Change*	x	x	x	x	x

* Covered in a separate Sustainability Strategy submitted with the application.

2.3.4 The Scoping Report was submitted to LB Ealing and LB Hillingdon on 21st November 2007 with a request for a formal Scoping Opinion. Formal Scoping Opinions, in accordance with regulation 10 of the EIA Regulations, were provided by LB Hillingdon on 28th December 2007 and LB Ealing on 7th March 2008. These are included in Appendix 2.1 and summarised below.

2.3.5 The Applicant's consultant team have met with relevant LB Ealing and LB Hillingdon officers, the Environment Agency (EA), British Waterways, Transport for London (TfL), the Greater London Authority (GLA), Commission for Architecture and the Built Environment (CABE) and other consultation bodies to discuss the methodology and coverage of the individual studies feeding into the EIA. In formulating their separate Scoping Opinions, LB Ealing and LB Hillingdon consulted a range of statutory and non-statutory organisations, which were provided with copies of the Scoping Report. These organisations are listed in Table 2.2 below:

Table 2.2 List of Organisations Consulted on the Scoping Report

Organisation Consulted on West Southall Scoping Report	
British Waterways	London Borough of Hillingdon
Civil Aviation Authority	London Borough of Hounslow
Crossrail	London Fire Brigade
DEFRA	London Wildlife Trust
English Heritage	Ministry of Defence (MoD)
Environment Agency	Natural England
Greater London Authority (GLA)	National Air Traffic Service
Government Office for London (GOL)	Network Rail
Heathrow Airport	Sport England
Health and Safety Executive	Transport for London (TfL)
London Borough Ealing	

2.3.6 The Scoping Opinions received from LB Hillingdon and LB Ealing, and the comments of the various statutory consultation bodies on the proposed scope of the ES, generally endorsed the approach to the EIA. However, a few further points of detail and queries were raised, which have since been incorporated and addressed in this ES. The main points raised are outlined in Table 2.3 below:

Table 2.3 Issues Raised in response to the Scoping Opinion

Organisation	Summary of Key Issues Raised	ES Chapter where issue is addressed
LB Ealing	LB Ealing's Environmental Health Officer (EHO) requests that the noise assessment address SPG10 'Noise and Vibration' with regard to the 2016 noise contours for Heathrow Airport.	This has been addressed in Chapter 9: Noise and Vibration.
	LB Ealing's EHO requests that the construction phase takes into account effects associated with dust nuisance by using BRE and other guidance (e.g. background dust burden surveys prior to works for comparison, and also dust control monitoring).	Dust effects have been assessed in Chapter 10: Air Quality with reference to the London Best Practice Guide.
	LB Ealing's transport services division advise the usage of the LINSIG programme for the checking of isolated junctions.	The TRANSYT programme has been used for all signalised junctions as it is the preferred tool of TfL who are responsible for all of the signalised junctions throughout London.
Ealing Primary Care Trust (PCT)	Ealing PCT advise that a full Health Impact Assessment (HIA) should be commissioned to identify the potential and negative health impacts of the development on those living in both existing and new housing, and the means to address them, in both the short and longer terms.	A HIA has been carried out for the Proposed Development and constitutes a part of the documentation that accompanies the Planning Application.
LB Hillingdon	Requests consideration is given to the socio-economic impacts on viability and future growth of Hayes Town centre and Uxbridge Road.	This issue is addressed in Chapter 7: Socio-economics Effects and within the Retail Impact Assessment accompanying the applications
	Request that impacts on Open Space for Hillingdon residents is considered within the ES.	This is addressed within Chapter 7: Socio-economics Effects and within the DAS accompanying the applications.
	Reference is required to Hillingdon's AQMA & AQMP, due to vehicle movements on Pump Lane Link Rd.	LB Hillingdon's AQMA and AQMP are considered within Chapter 10: Air Quality.
	Request that residential amenity space is considered within the solar shading assessment.	Residential amenity space has been considered and is detailed within Chapter 16: Microclimate.
Environment Agency	The EA requested a full Flood Risk Assessment be carried out.	Two Flood Risk Assessments have been carried out - these reports can be viewed as Appendix 13.2 and 13.3 and are discussed in Chapter 13: The Water Environment and Chapter 14: Ecology.
	The EA also requested that 8m of undeveloped buffer is included at the top of the bank of Yeading Brook.	This has been addressed in the design proposals and discussed in Chapter 13: The Water Environment.
British Waterways	BW advised that the TA should address the feasibility of servicing the Site (including the transport of waste) with waterborne freight during clearance, construction & operation.	The Transport Assessment at Appendix 8.1 addresses the feasibility of waterborne transport with a summary of the findings outlined in Chapter 8: Transport and Movement.
	BW request that residential mooring at Bulls Bridge should be considered as a sensitive receptor to noise & vibration.	Bulls Bridge has not been considered further as it was considered by both the noise and air quality consultants as being too far from the study site to be affected, it is however referred to in Chapter 8: Transport and Movement.
	The existing weir structure, old docks and the outfalls which stick out into the canal should be considered in the Water chapter.	The old docks are considered within Chapter 12: Ground Conditions and Chapter 13: The Water Environment.
	The heritage value of the docks should be considered?	The heritage of the docks has been considered within Chapter 15:

Organisation	Summary of Key Issues Raised	ES Chapter where issue is addressed
		Archaeology
Network Rail	Network Rail made a number of recommendations including: That a 1.8m trespass fence is erected parallel but separate to railway fence; soakaways should not be constructed within 10m of Network Rail's boundaries; design & siting of building should take into consideration possible effects of Noise and Vibration from the railway; Details of landscape plans should be submitted to Network rail prior to approval.	These issues have been addressed within the design of the Scheme and will be further addressed at the detailed planning stage.

Spatial Scope

2.3.7 The geographical extent of the EIA is referred to as the spatial scope. The spatial scope of the assessment varies depending on the particular receptor. Certain environmental effects extend beyond the Site, such as, air quality, noise, transport and movement, and socio-economic influences. The spatial scope of the assessments are set out in the specialist chapters and the coverage takes into account the following:

- The physical area of the proposed Scheme.
- The nature of the baseline environment.
- The manner in which the effects are likely to be propagated.

Temporal Scope

2.3.8 The EIA considers the effects from the remediation, site preparation, construction and occupation stages of the Scheme. The temporal scope used for the assessment assumes the construction for the Scheme will commence in 2010; therefore this is considered as the 'Baseline Year'. A general description of the baseline conditions within and around the Site is presented in Chapter 3: Site and Proposed Scheme. Where specific, more distant receptors have been considered these are described in each technical chapter for the different environmental disciplines.

2.3.9 The proposed development will be built out in (up to) 13 discrete phases over approximately 15 years. For the purpose of the ES, the sequence of phases have been defined on an Illustrative Phasing Plan (see Figure 6.1) which groups the phases into 5 year timelines. Whilst this phasing is inevitably flexible to respond to changing market conditions, it is presented as a 'reasonably likely' scenario for how the West Southall Scheme will be built-out assuming planning permissions are granted within a 18 month timeframe. The illustrative phasing also represents a 'worst case', in that development is unlikely to proceed more rapidly than this and thereby it represents the maximum intensity of development, with associated construction impacts occurring during these phases.

2.3.10 For the purposes of the ES the temporal scope has therefore been separated into stages as outlined in Table 2.4.

Table 2.4 Scenarios for Environmental Impact Assessment

Phases		Assessment Year	Approximate Quantum of Residential
0	Baseline Year	2009/2010	None
1-4	Remediation, Construction & partial occupation.	2010-2015	812
5-9	Remediation, Construction & partial occupation	2015-2020	1815
10-13	Final development phases and Scheme Completion	2020-2025	875

2.3.11 For the full operational/occupation phase, the temporal scope will be determined by the predicted date of the scheme completion which is assumed to be 2025. This is the Principal Assessment Year against which the full or permanent effects of the Scheme can be judged. The Interim Years may be characterised by additional transient/ temporary effects which may not exist at the commencement or completion of the West Southall Scheme (for example, the effects from ongoing construction activity on new residents), or, effects may occur at a higher or lower intensity than at completion (e.g. traffic, noise etc.).

2.3.12 The prevailing Site conditions, including both the remediation, construction and operation at the completion of each 5 year period (2015, 2020 and 2025) have been addressed during the assessment of each EIA topic, taking into account any new sensitive receptors. However, the effects of the proposed development during the Interim Years (2010 and 2015) are, for some topics, assessed in qualitative terms only, whereas a more definitive assessment is applied to the Principal Assessment Year (2025). Also, in accordance with professional guidelines, certain technical assessments are also assessed for the completed scheme + 15 years.

2.3.13 The temporal scope also takes into account the time of day during which works are likely to be undertaken, notably whether they are undertaken during daytime or night-time periods.

2.4 Stages of EIA

2.4.1 The principal stages of the EIA process have, in this instance, comprised the following:

- Review of the planning history, including the 2005 Outline Planning Application and associated applications for the accesses by SecondSite Property Holdings Ltd (now National Grid Property Ltd) and it's then development partner Castlemore Securities.
- Visits to the Site by the professional project team;
- Consultations with officers of the LB Ealing and LB Hillingdon, TfL, Environment Agency, Natural England and other consultation bodies;
- The preparation and submission of a Scoping Report to LB Ealing and LB Hillingdon on 21st November 2007;
- Baseline data gathering (such as for noise, air quality, traffic, ecology etc.);
- Identification of existing sensitive receptors to potential impacts from the proposed Scheme, as well as future potential receptors such as planned developments in the area (those with planning consent);
- Assessment of the effects, by comparing the differences between the baseline condition (2009/10), and those likely to result from the proposed Scheme (in 2025);
- Incorporation by the project architect (Make), of 'design mitigation' (e.g. restricting maximum building heights to reduce townscape and visual impacts) and other enhancements (e.g. landscape and sustainable design features) to maximise the beneficial environmental effects of the Scheme.
- Identifying any additional mitigation measures necessary to prevent, reduce or offset these effects, for which planning conditions or obligations are invited by the Applicant to ensure their implementation;
- Identifying the residual effects of the Scheme assuming that the identified mitigation measures and any further enhancements are implemented; and,
- Preparation and submission of the ES with the planning application.

2.5 Consultation with Stakeholders

2.5.1 Planning Policy Statement 1 (PPS 1) [2.10] encourages a positive approach to pre-application consultation, in order that the development proposals recognise the needs of the community. In accordance with this guidance, the Applicants have kept the local community and business forums, neighbouring residents, council officers and other organisations regularly informed of the proposals. In reality, there has been a continuous dialogue with these stakeholders, prior to and following the previous '2005 Scheme' application for the Site. Therefore, the views and concerns of these parties are well known and the Applicant has attempted to accommodate these into their plans.

2.5.2 A public exhibition was held in the Dominion Centre on The Green, Southall (located less than a quarter of a mile from the site), between Friday 11th May and Sunday 13th May 2007. The exhibition was publicised to residents, community groups and stakeholders in the area to ensure maximum awareness and encourage turnout and participation throughout. Adverts were placed in a number of local newspapers for the two weeks before the exhibition and flyers were distributed the week preceding the exhibition to 15,500 homes in the area.

2.5.3 A presentation on the proposed Scheme was also given to Ken Livingston (former Mayor of London) at the Greater London Authority offices on 17th September 2007 to gauge the view of the GLA on the emerging Scheme proposals. Further workshops have been undertaken in partnership with the GLA for Retail (20th May 2008), Energy (4th June 2008) and Accessibility (4th September 2008) elements of the development.

2.5.4 A full account of the consultation process to-date is given in the Statement of Community Involvement which accompanies the applications.

2.6 Identification of Sensitive Receptors

2.6.1 As part of the EIA process, the environmental effects of a given development or scheme are typically predicted in relation to sensitive environmental receptors.

2.6.2 Environmental effects have been predicted in relation to relevant receptors, including human beings (e.g. residents of adjoining dwellings, users of facilities etc), built resources (e.g. roads, buildings and infrastructure) and natural resources (e.g. ecological habitats or areas of existing landscape value).

2.6.3 The most sensitive receptors have been identified as: Flora and fauna (at and within the Canal, Yeading Brook and Minet Country Park); local residents of Southall (especially those at the residential roads off Beaconsfield Road and South Road); pupils and staff of local schools (e.g. Blair Peach Primary School); local cultural and religious centres (e.g. the Gudwara to the east and various churches, temples and mosques to the north and south of the Site); construction workers; road users and users of the local transport system. An indicative plan of sensitive receptors is included at Figure 2.1.

2.6.4 The criteria used for identifying receptors that are considered to be potentially sensitive include:

- Sensitivity of existing land uses (e.g. residential dwellings, schools, hospitals etc);
- Proximity to the Site;
- Extent of potential exposure to the environmental effects;
- Number of individual receptors; and

- The receptor's ability to absorb change.

2.6.5 A summary of the sensitive receptors identified in each of the technical chapters is provided in Table 2.5.

Table 2.5 Sensitive Receptors

Chapter in ES	Sensitive Receptors
Chapter 6 Construction and Phasing	Local residents within the surrounding area who may be impacted by noise, dust, increased traffic, increased population associated with the construction phase. Workers on-site during remediation and ground works.
Chapter 7 Socio-economics Effects	Local Residents within LB Ealing, LB Hillingdon, LB Hounslow; Commercial users of the Site and surrounding areas; Employees of the Site (direct and indirect). The local economy, particularly retailers and other businesses in Southall Town Centre.
Chapter 8 Transport and Movement	All aspects of traffic, public transport and pedestrian and cycle movement and associated infrastructure, particularly those used by residents and retail users.
Chapter 9 Noise and Vibration	Residents within close proximity to local roads which may be affected by road noise effects. Residents of the proposed development located in residential dwellings along the southern boundary of the Site.
Chapter 10 Air Quality	Locations where members of the public may be regularly exposed to air pollutants such as local residents within the immediate vicinity of the Site or within the adjacent Air Quality Management Area (AQMA) declared by LB Ealing and LB Hillingdon.
Chapter 11 Townscape and Visual Effects	Residents in surrounding residential areas; users of the Minet Country park, the Grand Union Canal, and the surrounding roads.
Chapter 12 Ground Conditions	Construction workers; future site users; groundwater.
Chapter 13 The Water Environment	The Yeading Brook; Grand Union Canal; Major aquifer. Local residents and Site users (flood risk)
Chapter 14 Ecology	Flora and fauna in the adjacent Minet Country Park, the Canal and Yeading Brook
Chapter 15 Archaeology	Potential Palaeolithic remains on the Site.
Chapter 16 Built Heritage	Grade II Listed Water Tower west of Eastern Access route. The 'Crescent' and dwelling to be demolished on Beaconsfield Road, Randolph Road and Grange Road.
Chapter 17 Microclimate (wind and solar)	Local residents; users of the existing roads; future residents and people using buildings and open space.
Chapter 18 Operational Waste	Air quality; local water sources; site users.

2.7 Assessment Criteria

2.7.1 In all cases, the assessments of individual impacts are based on the Parameter Plans (outlined in the Development Specification and the description of the proposals as set out in Chapter 3: Site and Proposed Development. This also takes account of certain assumptions detailed in Section 2.11 of this Chapter. Where relevant, any additional features of the proposed development that are relevant to a particular assessment topic are identified in the corresponding chapter.

Evaluation of Significance

2.7.2 The concept of significance is central to the EIA process. The classification of significance aids the decision maker (in this case LB Ealing and LB Hillingdon) in identifying the main environmental effects of a scheme and, secondly, what weight should be given to these effects in reaching its decision concerning whether or not to grant planning permission. There is no statutory definition of what constitutes a significant effect and guidance is essentially of a generic nature. However, it is

widely recognised that ‘significance’ reflects the relationship between the magnitude of an impact and the sensitivity or value of the affected resource or receptor.

2.7.3 Statutory designations and any potential breaches of environmental law take precedence in determining significance, because the protection afforded to a particular receptor or resource has already been established as a matter of law, rather than requiring a project or site-specific evaluation. Thus, effects resulting in unacceptable risks to human health and safety, the prevention of pollution of controlled waters or harm to protected species cannot be permitted.

2.7.4 The following approach provides a common framework within which the significance of the effects for all environmental topics arising from the proposed development has been predicted.

2.7.5 Specific criteria for the assessment of each potential effect have been developed giving due regard to the following:

- Extent and magnitude of the effect;
- Effect duration (whether short, medium or long term);
- Nature of effect (whether direct or indirect, reversible or irreversible);
- Performance against environmental quality standards;
- Sensitivity of the receptor; and
- Compatibility with environmental policies.

2.7.6 In instances where definitive quality standards do not exist, significance has been based on the following:

- Local, district, regional or national scale of value of the resource and/or receptor affected;
- Number of receptors affected;
- Sensitivity of those receptors; and
- Duration of effect.

2.7.7 Within the ES, a generic description has been used in many of the chapters to define the level of significance of effects, as provided in Table 2.6.

Table 2.6 Generic Definitions of Significance

Level of Significance	Description
Substantial	Very large or large change in environmental or socio-economic conditions. Effects, both adverse and beneficial, which are likely to be important considerations at a regional or district level because they contribute to achieving regional or local objectives or, could result in exceedance of statutory objectives and/or breaches of legislation.
Moderate	Intermediate change in environmental or socio-economic conditions. Effects which are likely to be important considerations at a local level.
Minor	Small change in environmental or socio-economic conditions. These effects may be raised as local issues but are unlikely to be of overriding importance in the decision making process.
Negligible	No discernible change in environmental or socio-economic conditions. An effect that is likely to have a negligible or neutral influence, irrespective of other effects.

2.7.8 Within this ES, the following generic matrix has been used in many of the chapters to determine the level of significance of effects (Table 2.7). In some cases, analogous matrices for the various specialist topics are used and, where these use different assessment criteria, this is clearly stated within the relevant chapter.

Table 2.7 Significance Matrix

	Magnitude of Impact			
Sensitivity/value of receptor	High	Medium	Low	Negligible
High	Substantial	Substantial	Moderate	Minor
Medium	Substantial	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible
Negligible	Minor	Negligible	Negligible	Negligible

2.7.9 Following their identification, significant effects have been classified within the ES on the basis of their nature and duration as follows:

- Beneficial effects that have a positive influence on receptors and resources;
- Adverse effects that have a negative influence on receptors and resources;
- Temporary effects that persist for a limited period only (due for example to particular activities, e.g. construction noise);
- Permanent effects that result from an irreversible change to the baseline environment (e.g. landtake) or which persist for the foreseeable future (e.g. noise from operational activities);
- Direct effects that arise from activities that form an integral part of the scheme (e.g. direct employment and income generation);
- Indirect effects that arise from the impact of activities that do not explicitly form part of the scheme (e.g. induced employment elsewhere);
- Secondary effects that arise as a consequence of an initial effect of the scheme (e.g. changes to groundwater conditions affecting ecology);

- Cumulative effects. These are discussed briefly below and in Chapter 19. Such effects can arise from a combination of different effects at a specific location or the interaction of different effects over different periods of time.

2.7.10 Where it has not been possible to quantify the effects of the proposals, qualitative assessments have been undertaken, based on professional judgement in the knowledge of the information available and in the context of the proposals.

2.8 Cumulative Effects

2.8.1 Any impact that arises as a result of incremental changes caused by other sources (which are present or reasonably foreseeable) in combination with the impacts of the development are known as cumulative impacts. This typically applies when two or more adjoining, but unrelated, developments are planned to occur at the same time and therefore could result in heightened impacts through the coincidence of construction activity or traffic generation on local roads. Cumulative effects also arise from the potential for individual impacts (e.g. air, noise, visual effects) to combine to create a worsening of effects (e.g. overall level of community annoyance) compared the effects considered in isolation. The methodology of assessment for cumulative effects is set out in Chapter 18: Cumulative Impacts.

2.9 Mitigation and Enhancement Measures

2.9.1 Where potentially significant environmental effects have been identified during the assessment process, the specialists undertaking the EIA have described mitigation and enhancement measures consistent with best practice in their respective field, taking into account local constraints and characteristics and the ability of the Applicants to implement such changes (e.g. through Section 106 obligation or planning conditions). Any essential mitigation measures have been proposed to prevent, reduce and where possible offset these effects. These measures are described in the technical chapters.

2.10 Assessment of Likely Residual Effects

2.10.1 The residual effects of the scheme are set out for each topic assuming implementation of the mitigation measures identified. This includes an assessment of the significance of those effects in accordance with the identified criteria. Chapter 19 sets out a full summary of the mitigation measures that the Applicant is committed to, together with any further enhancement measures. The residual effects are then described.

2.11 Limitations, Constraints and Assumptions

2.11.1 The specific limitations, constraints or assumptions common to the assessment are listed below:

- The proposed development would satisfy minimum environmental standards, consistent with contemporary legislation, practice and knowledge.

- The principal existing land uses adjoining the Site remain, except where planning permission has already been granted or where there is a reasonable likelihood of planning permission being granted and such development commences before 2010.

2.11.2 In relation to constraints and uncertainties, where there are deficiencies in the data these are identified in the relevant Chapters of the ES. Despite limitations, constraints and assumptions, the results of the assessment are considered robust and compliant with the EIA Regulations.

References

2.1 HMSO (1989) Statutory Instrument 2093: Town and Country Planning (Environmental Impact Assessment) (Amendment) (England) Regulations 2008

2.2 Council Directive No. 85/337/EEC as amended by Council Directive No. 97/11/EC

2.3 HMSO (2008) Statutory Instrument 2093: The Town and Country Planning (Environmental Impact Assessment) (Amendment) (England) Regulations, 2008.

2.4 DCLG (2006) Environmental Impact Assessment: A Guide to Good Practice and Procedures: A consultation paper, 2006

2.5 Institute of Environmental Management and Assessment (IEMA) (2004) Guidelines for Environmental Impact Assessment

2.6 Department for Communities and Local Government (DCLG) (2001) Environmental Impact Assessment: A Guide to Procedures, 2001

2.7 Department of Environment, Transport and the Regions (DETR) (1999) Circular 02/99: Environmental Impact Assessment

2.8 DCLG (1999) Note on EIA Directive for Local Planning Authorities (1999 EIA Regulations)

2.9 Department of the Environment (DoE) (1995) Preparation of Environmental Statements for Planning Projects that require Environmental Assessment: A Good Practice Guide

2.10 HMSO (1997) Planning Policy Statement (PPS) 1

1. Former water tower
2. The Crescent
3. Beaconsfield Road
4. South Road
5. Southall Station
6. Gurdwara Sikh Temple
7. Uxbridge
8. Grand Union Canal
9. Yeading Brook
10. Yeading football ground
11. Guru Nanak Sikh Temple
12. Minet Country Park
13. Hayes bypass

Indicative Site Plan
London Borough Boundaries

RPS

Date:	07.02.08	Scale:	NTS	Rev:	
Job No:	JLD0211	Drawn:	MB	Checked:	CC

Project: West Southall

Title: Indicative Map of Sensitive Receptors

Figure No: 2.1

Drawing Ref:

3 SITE AND PROPOSED DEVELOPMENT

3.1 Introduction

3.1.1 This chapter provides a more detailed description of the existing Site and the development proposals, including the nature of the application, the main components of the Scheme and the parameters on which the EIA has been conducted. It should be read in conjunction with the Design and Access Statement (DAS) which provides greater details on the proposed Scheme with respect to: use and quantum; design; layout; form and scale; public realm; building typologies; the site accesses; and sustainable design features.

3.2 Site Location

3.2.1 The Main Site is located within the London Borough of Ealing, in the heart of the West London Sub Region, close to Southall and Hayes town centres, to Southall railway station, to the A312 Hayes Bypass (connecting to Heathrow Airport) and to the M4. The Site is bounded to the south by the London Paddington to Bristol railway line, to the west by the Grand Union Canal (Paddington Branch), to the north by houses fronting Beaconsfield Road (and adjoining roads), and to the east by South Road and The Crescent. The M4 motorway lies to the south, generally parallel to the railway, with Junction 3 (the A312 intersection) approximately 1.2km to the south west of the site. At its closest point, the A312 Hayes Bypass is approximately 230m to the west of the Site, beyond the Minet Country Park. Figure 3.1 illustrates the Main Site boundary and existing access routes.

3.2.2 The Main Site falls wholly within LB Ealing, however, the Grand Union Canal (Paddington Branch) marks the boundary with the London Borough of Hillingdon, which encompasses land to the west of the Main Site that will be required for the construction of access links to the Site (both vehicular and pedestrian) together with a flood attenuation pond.

3.2.3 The Main Site comprises 33.9 hectares (c.104 acres) of under-used land, previously occupied by the Southall gasworks, industrial and employment uses. The land is generally level at approximately 31m Above Ordinance Datum (AOD). The Site excludes approximately 3ha of land around and including the main gasholder and associated gas infrastructure to be retained for operational use by National Grid Gas (NGG).

3.2.4 The Site comprises a generally triangular parcel of land and is located within a wider urban conurbation, comprising mainly residential, retail and employment uses, with Southall (LB Ealing) to the north and northeast, Norwood Green (LB Hounslow) to the southeast and Hayes (LB Hillingdon) to the west. The Minet Country Park, established in 2001, provides extensive open space to the west of the Grand Union Canal. The Yeading Brook approximately 50m from the site boundary, runs to the west of, and generally parallel to, the Canal. The towpath of the canal is promoted as a recreational route, forming part of the Grand Union Walk and the Hillingdon Trail.

3.2.5 The NGG compound is located approximately mid way along the southern boundary of the Main Site. Three working gasholders create the principal landmarks within the NGG Site, the easternmost rigid structure being the tallest at approximately 90m high (or approximately 121m AOD to the top, which is the equivalent of a 32 storey building). The other gasholders are telescopic, responding to mains gas pressure; the western holder rises to 65m Above Ground Level (AGL) and the middle holder rises within a rigid frame to 35m AGL when fully extended. These two gasholders have been decommissioned and are to be removed in conjunction with, but not dependant upon, the proposed Scheme.

3.2.6 Access to the eastern compound is via The Crescent and The Straight off of South Road whilst access to the western compound is via the Brent Road underpass off of Hayes Road/Western Road.

3.2.7 Vegetation is sparse within the Site and comprises predominantly semi-mature trees and scrub along the canal edge and northern boundary, with mature poplar trees present around the vicinity of the derelict recreational area. A more detailed account of vegetation on the Site is given in Chapter 14: Ecology, and in the Arboriculture (tree) Survey Report, contained in Appendix 14.7 to this ES.

3.3 Current Site Uses

3.3.1 The Site is characterised by extensive areas of hard standing that comprise concrete or loose chippings. The majority of the Site is leased by Purple Parking Ltd and has been used commercially for over 15 years for vehicle storage and long stay, off-site vehicle parking for Heathrow Airport. Access to the parking area is via the Brent Road underpass. Buildings within the Site comprise the gasholders and associated structures, security kiosks/barriers, and offices and ancillary buildings used by Purple Parking. Two warehouse buildings are located along the northern boundary, near the Beaconsfield Road/Trinity Road junction. These are in miscellaneous employment use, including storage and vehicle servicing. Access to this area is from Beaconsfield Road and The Straight.

3.3.2 Tall, corrugated steel panels secure much of the Site boundary, including the extensive canalside boundary (approximately 1km long). Elsewhere, brick walls or chain-link fencing associated with the gasworks complete the boundary security.

3.3.3 A derelict recreational area and other incidental open land lie towards the eastern edge of the Main Site. These areas were associated with the former gas and chemical works. The derelict recreational area has lain unused for more than 20 years and is largely overgrown with shrubs.

Land Use to the North of the Site

3.3.4 Land to the north of the Site is predominantly residential, comprising two-storey terraces, extending north from Beaconsfield Road via six roads; Ranleagh Road, Woodands Road, Trinity Road, Townsend Road, West End Road, Hamborough Road and Abbotts Road connecting to Uxbridge Road and beyond. Six houses on Beaconsfield Road also fall within the development site boundary. The Blair Peach Primary School lies at the western end of Beaconsfield Road, immediately to the east of the Canal.

Land Use to the South of the Site

3.3.5 The Straight runs along the southern boundary of the Main Site and provides an existing vehicular access to the NGG compound, where it presently terminates at White Street in the vicinity of the White Street/Dudley Road pedestrian underpass (beneath the railway). The Straight runs adjacent to the northern boundary of the railway with part of the secure parking area together with open land to the north. The Grade II Listed former Water Tower (now in residential use) marks the eastern end of The Straight at its junction with The Crescent.

3.3.6 The railway lies to the south of the Site on a low embankment at approximately 1 to 2m above the level of the Main Site. The railway comprises four tracks and there is a 12 line siding opposite the eastern half of the Main Site. This provides inter-city connections between Paddington, Bristol, Wales and the West Country as well as more local services with links to Heathrow Airport. Local rail and London Underground links are provided by Southall Railway Station east of South Road. Hayes and Harlington railway station lies approximately 900m to the west.

3.3.7 Land uses to the south of the railway include the International Trading Estate and Balfour Business Centre to the west, and residential properties of mixed-age to the east. A cluster of business uses is also located at the Featherstone Industrial Estate to the southwest of South Road Railway Bridge.

Land Use to the East of the Site

3.3.8 As shown on Figure 1.2, existing land uses to the east of South Road include Southall Railway Station and railway land, the Sikh Gurdwara Temple, and miscellaneous commercial and industrial uses. The entrance to the railway station is at the elevated South Road level on the bridge over the railway, with platforms at the lower ground level (although no public access is available at that level). The Gurdwara Temple comprises a contemporary (c.1980s) portal framed building fronting onto Park Avenue, with car park and recently-built ancillary accommodation building to the south, adjacent to the railway land.

3.3.9 Terraced two-storey residential properties occupy the northern side of The Crescent, giving way to business uses as it curves north toward the junction with Beaconsfield Road/A3005 South Road. South Road and the railway overbridge and embankment form the southern/eastern boundary of The Crescent.

3.3.10 Park Avenue runs eastwards from South Road, before turning north to join the dual carriageway of Uxbridge Road, opposite the West Middlesex Golf Course. Southall Park lies to the north of Park Avenue, and is separated from it by predominantly two-storey semi-detached residential properties (c.1950s) which characterise this area. The housing is separated from the railway by light industrial uses and recently built three storey residential apartments.

Land Use to the West of the Site

3.3.11 Land to the west of the Site falls within the Yeading Brook corridor. This area is generally open and contains the Canal adjoining the Site, the Brook and its vegetated banks, and Minet Country Park. The Park comprises 36 Ha of undulating scrub and more open landscape between Yeading Brook and the Hayes bypass. The facilities within Minet Country Park include a formal cycle racing circuit to the north, a visitor's centre, informal open space including picnic areas, equipped play space and a wildlife area. Land between the Canal and Yeading Brook is generally cloaked with dense continuous native scrub although some invasive plant species, including Japanese Knotweed, also exist.

3.3.12 Yeading Town Football Club is located to the north west of the Site at the eastern end of Beaconsfield Road (Hayes). This comprises the main pitch with stand, changing and ancillary facilities, club house building and car parking. An informal training pitch is also located to the south of the football club within the Minet Country Park. The football club has recently (September 2008) been granted permission for the realignment of the main pitch and club house (in order to accommodate the Springfield Road access route); the realignment and improvement to the training and junior pitch and replacement of existing lighting.

3.3.13 The Guru Nanak Sikh College lies to the west of the football ground, at the corner of Beaconsfield Road (Hayes) and Springfield Road, and is separated from Yeading Football Club by sports pitches associated with the college. The car park and main access to Minet Country Park is also located at this junction, adjacent to the college.

3.3.14 Land within the Pump Lane Link Road corridor to the south-west is undeveloped. To the west of the Yeading Brook, in the vicinity of the railway, the topography is sharply undulating indicating that the area has historically been subject to tipping of waste material and is now overgrown with scrub.

3.3.15 The Yeading Brook follows a gently meandering route and flows into the River Crane approximately 2.5km to the south. The Brook is classified by the Environment Agency as Poor (Class E) for biological quality and Fairly Good (Class C) for chemical quality. A separate flood channel associated with Hayes bypass forms the western boundary of Minet Country Park. This has an engineered trapezoidal section and is concrete-lined. It is not classified by the Environment Agency in relation to water quality.

3.3.16 Groundwater levels within the Main Site are approximately between 0.45 - 2.7m below the prevailing ground level. The groundwater flows northward and westward towards Yeading Brook.

3.3.17 The 100-year flood level of Yeading Brook does not extend eastwards into the Main Site because of the intervening Canal, which is at a higher level than the Brook. The Main Site is therefore not subject to flooding.

3.3.18 The Canal is a relatively narrow waterway that has been subject to periodic siltation and dredging. It is classed as a Poor (Class E) watercourse for both biological and chemical quality by the Environment Agency. An unsurfaced towpath runs along the eastern bank of this water body. The Canal and towpath are used principally by leisure craft, anglers, pedestrians and cyclists.

Site Constraints

3.3.19 The Site is constrained by restrictions on development imposed by the adjacent operational gasworks site area and associated infrastructure. The operational site requires a 5m boundary zone incorporating a below ground Bentonite wall to offer protection whist statutory legislation restrict the type of use and development density within 60m of the gasholder. Easements - defined zones either side of the centreline of infrastructure routes where buildings cannot be constructed - cross the Site and influence the layout of the proposed Scheme. The majority of the existing underground services cannot be relocated due to their significance, however the pipeline to the north running along the northern boundary of the Site is likely to be re-aligned. Figure 3.2 shows a plan of the constraints to the proposed development and Table 3.1 provides a key to the plan.

Table 3.1 Key to Site Constraints Plan

Location	Infrastructure Constraints
1	5m landscape zone incorporating Bentonite protective wall around operational gasworks required.
2	Gasholder 60m safety zone
3	Existing gas pipeline – fixed location
4	Proposed gas pipeline easement – fixed location
5	Existing foul sewer – fixed location
6	Existing gas pipeline – may be relocated
7	Existing gasholder to be demolished and associated infrastructure decommissioned.

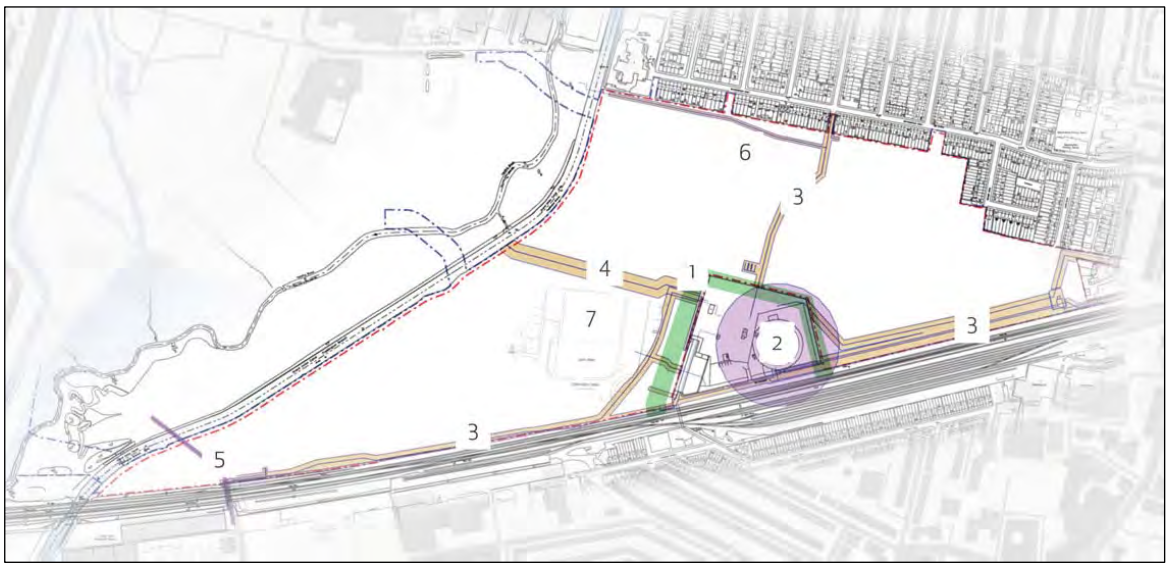


Figure 3.2 Site Constraints Plan

3.4 Environmental and Other Designations

3.4.1 The West Southall Site, comprising the Main Site and the accesses, is not subject to any international, national, or regional designations related to particular features of environmental quality or interest.

3.4.2 Figure 3.3 shows designated land and features in and around the Site including designated Green Belt, public rights of way, listed buildings, Conservation Areas and ecological designations.

3.4.3 The Grade II Listed Water Tower is located adjacent to the current site access road off The Crescent in the eastern corner of the Site. This five-storey tower has been converted into residential use. It remains outside of the red line boundary for the proposed Scheme and therefore will not be subject to redevelopment. Boundary walls, two two-storey cottages and outbuildings associated with the former Water Tower fall to the west within its listed curtilage and provide the historic setting for the building.

3.4.4 Land within the Yeading Brook corridor (between the Main Site and Hayes bypass) is designated as Green Belt in LB Hillingdon's Unitary Development Plan (UDP) [(3.1)].

3.4.5 The Canal is subject to various designations and planning policies, including:

- A Site of Importance for Nature Conservation of Metropolitan (Grade 1) Importance.
- Part of the 'Blue Ribbon' network as identified in the London Plan [(3.3)].
- The eastern part of the Canal (that which falls within Ealing) is designated as a Conservation Area as shown on Map 8 of Ealing UDP [(3.4)].

3.4.6 The towpath of the Canal is promoted as a recreational route, forming in part, the Grand Union Walk and the Hillingdon Trail.

3.4.7 None of the trees within the Main Site or along the access routes are subject to Tree Preservation Orders. However, all those trees which fall within the Grand Union Canal Conservation Area (along the towpath within Ealing) are afforded protection against unauthorised tree works or felling where they are at least 75mm girth measured at 1.5m above ground level.

3.4.8 The Site does not fall within or is adjacent to any views considered of strategic importance, as set out in the London View Protection Framework of the London Plan. No views of noted interest (as identified within the respective UDP's) occur from, or to, the Boroughs of Hillingdon or Hounslow. Views that are considered by Ealing Council to be locally important and of local interest are noted in the adopted UDP at Table 10.8. Within the study area, LB Ealing identifies 'Local Views in Southall' to include:

- 25 Southall Railway Bridge, west toward the former Water Tower on The Straight.
- 26 South Road/Southall Railway Bridge, east toward the Sikh Gurdwara site in Park Avenue.

3.4.9 These views have been considered further within Chapter 11: Townscape and Visual Effects.

3.4.10 The open land within the Main Site is in private ownership and therefore there is no right of access to members of the public. This is reinforced by the current land use of secure vehicle storage and associated security measures comprising high boundary walls and fences.

3.4.11 Various public rights of way occur within the surrounding area of the Site. These include a link from Abbotswood Way/Avondale Drive to Springfield Road/Beaconsfield Road (Hayes) junction, beneath the Hayes bypass; the Canal towpath; Spencer Street/White Street railway underpass; and various alleyways between rows of housing to the north of Beaconsfield Road (Southall).

3.5 The Vision for West Southall

3.5.1 The 'developable area' of the entire West Southall Site, including the Pump Lane realignment and pedestrian bridges, extends to 41Ha (c.92 acres). This area is shown in the Parameter Plan entitled 'Composite Development Area' reproduced in this ES as Figure 3.4a.

3.5.2 The vision for the Scheme is to create a new high quality urban environment that would transform the current area and complement the role and function of Southall. The DAS and the Regeneration Strategy (submitted separately with the planning applications) identify the following key benefits and objectives of the West Southall Scheme:

- Development of a vacant brownfield site;
- Creation of a high quality environment;
- Remediation of a contaminated site;
- Provision of a substantial number of homes to contribute towards the 5,800 homes envisaged for the Opportunity Area (including affordable housing provision) as set out in the adopted London Plan;
- Provision of a substantial number of jobs, many of which will be available to local people;
- Provision of community facilities;
- Employment and training initiatives;
- Sustainable development/renewable energy strategy; and
- Improved transport linkages.

3.5.3 The development will address a number of regeneration issues including: the inadequate provision of services in parts of the local area; lack of recent investment within the area immediately surrounding the Site; physical separation between the north and south of Southall, by making efficient use of the large vacant site; and the provision of sufficient community, health and education facilities to serve the needs of the future population.

3.6 Parameter Plans

3.6.1 In light of recent Case Law and UK Government guidance, EIAs carried out for outline planning applications must be based on certain threshold of development, including 'fixed' parameters for scheme layout, height, mass etc. Further requirements are set out in Section 2 of the Department for Communities and Local Government (DCLG) Circular 01/2006 that came into force on 10 August 2006 [(3.2)] (See Chapter 2: ES Scope and Methodology). Parameter Plans are often used in outline applications due to the absence of certainty in the final detailed design of a large and complex development which is to be built out in phases over a number of years and thereby requires the

ability to respond to market forces. Whilst preserving some flexibility in the way in which the final scheme is eventually built-out (subject to 'reserved matters' approvals) Parameter Plans are used to control key aspects of a development by the setting of limits to the built footprint and envelope so that the potential environmental effects can be adequately assessed.

3.6.2 The Parameter Plans on which the EIA for the West Southall Scheme has been based are described in Table 3.1.

Table 3.1 Descriptions of Parameter Plans for West Southall EIA

Figure Number	Application Drawing Number	Title	Description
3.4a	P1000	Composite Development Area	Red line showing full extent of land required for the development and for which the EIA will be conducted, including land required for the road and pedestrian links.
3.4b	P1002	Predominant Ground Floor Uses Plan	Grouping together individual plots/buildings within the grid created by fixed easements/constraints and the primary and secondary road system. This defines the uses of each plot, using colour coding to show the land use at ground level of each side of the plot. This plan also defines the maximum and minimum floor space for each land use (e.g. residential, retail, education etc.) across the Site.
3.4c	P1003	Predominant Upper Floor Uses Plan	As above, showing the principal land uses for the upper floors within each zone. This shows the prevailing residential grain above retail and other uses.
3.4d	P1004	Building Typology Plan	Plan of buildings by typology
3.4 e-m	P1005-P1013	Building Envelope by Typology	Plans to show the maximum and minimum building envelope in metres for each building typology. The plans also show the maximum number of storeys for each building footprint. The inter-relationship of maximum and minimum heights between adjoining zones will be dictated by certain design rules contained in the Design and Access Statement (DAS) and Development Specification.
3.4n	P1014	Road Layout	Showing the main or primary site roads with a limit of deviation (LOD) of +/-5m, secondary roads with an LOD of +/-10m and tertiary/residential roads with an LOD of +/-20m.
3.4o	P1015	Bus and Cycle Networks Plan	Showing all main routes and links to established off-site networks. Within the Site, these would be shown as routes only, the alignment of which would be is dictated by the Limit of Deviation of the road system.
3.4p	P1001	Public and Private Realm	Plan showing differentiation between private realm and public realm.

3.7 The West Southall Scheme

3.7.1 The West Southall Scheme encompasses 33.9 Ha (c.83.7 acres) and will provide a mix of uses, which will be residential-led, but also include retail, employment, leisure and community facilities, including a Health Centre and Primary School, and access routes.

3.7.2 The Proposals comprise the range of uses and floor space areas as described in Chapter 1: Introduction (Table 1.1). These are controlled by limits set by the Predominant Ground and Upper Floor Uses (Figure 3.4b & c) and the Building Envelope (Figure 3.4 e-m) Parameter Plans.

3.7.3 In addition to the Parameter Plans, the design of the West Southall Scheme has been based upon a set of Design Principles. Key principles are included in Table 3.2.

Table 3.2 Design Principles

Design Principle		Description
Principle 1	Central Park	A Park incorporating formal and informal areas that compliment the natural spaces of the Minet Country Park.
Principle 2	Residential Canal Front	A residential community between the Canal and the Central Park.
Principle 3	Vibrant Waterfront	Canalfront lined by café bars and restaurants
Principle 4	Town Square	Civic Space for Southall
Principle 5	High Street	Creating retail units that multiple retailers can utilise.
Principle 6	Completing the northern urban grid	Completing the grid of terraced housing to the north.
Principle 7	Buffer to railway	Forming a linear low level strip of development creating an environmental buffer for the Scheme from the railway.

Housing

3.7.4 The proposed Scheme comprises a maximum 320,000 m^2 of residential floor space which will provide a minimum of 3450 and a maximum of 3750 dwellings (the EIA has assessed this range of dwellings numbers, where appropriate). The number of units will be split between private sector and affordable housing (social rented and intermediate) comprising a mix of flats and houses from 1 bedroom to 4+ bedrooms.

3.7.5 It is an aspiration that up to 30% of the proposed dwellings would be affordable. This will comprise a mix of social rent and intermediate (definition to be agreed between the parties) tenures on a 60:40 split respectively. This is detailed in the Housing Strategy (accompanying the Planning Application), which may be subject of periodic review and amendment to reflect the operation of the cascade mechanism and any other changes accepted by the authority as the development progresses.

3.7.6 The affordable housing would be distributed across the site, with locations to be agreed with the local planning authority prior to the submission of the first reserved matters details. Family sized affordable dwellings would be provided at the lower levels of buildings, where possible, to facilitate ease of access to amenity space.

3.7.7 Private homeowners have on average twice the spending capacity of affordable housing residents. Therefore, an appropriate mix between private and affordable housing will enhance further the economic development opportunities arising from the development.

Employment, Retail and Leisure Uses

3.7.8 The Development has the potential to generate approximately 1,320 jobs through the provision of up to 60,000 m^2 of commercial space, new retail and hotel developments. The majority of the jobs will be provided within the retail sector, typically offering jobs across a broad spectrum of skills within this sector. Approximately 820 Full Time Equivalent (FTE) construction jobs could also be provided over a considerable period of time. The development would also have wider, non-quantifiable, employment impacts in terms of the type and volume of employment proposed. Further analysis of the employment potential of the development is provided in Chapter 7: Socio Economics Effects.

3.7.9 The proposed retail units are concentrated along the High Street to act as a focus and help define an identity for what will be a significant new community. The shops will be in easy walking distance for new residents and workers at the Site. Key to the retail proposal is a 5,800m² (gross) supermarket in the east of the Site. Additional comparison goods floor space would be arranged on either side of the High Street and will be closely integrated with the employment and residential units. The 14,200m² (gross) comparison floor space would be arranged in a number of unit sizes ranging from 188m² to 2,377m². The retail element of the scheme would be bought forward on a phased basis as each of the mixed-use blocks progresses.

3.7.10 The retail component has been calculated based upon the local needs which would be generated by the Scheme, ensuring that it would not be of such a scale as to harm the vitality or viability of other local centres in nearby Southall, or Hayes Town Centre west of the Site.

3.7.11 A new Sports Pavilion will be provided adjacent to the Central Park. The provision of this facility will aim to create a positive living environment for the future West Southall population.

3.7.12 Chapter 7: Socio-economics Effects and the Retail Assessment (submitted as a separate planning document accompanying the application) address these issues in further detail.

Education and Healthcare Provision

3.7.13 As the surplus places within existing local primary schools are insufficient to accommodate the demand arising from the West Southall Scheme, the proposals include the provision of a new Two Form Entry Primary School to meet locally generated demand.

3.7.14 It is projected that there will be 210 nursery aged children living in the development; nursery provision will therefore be included within the Primary School.

3.7.15 A Healthcare Centre of 2,550 m^2 is proposed on the Site accommodating up to eight General Practitioners (GPs) to meet the primary health care needs of the new community.

The Square and the Park

3.7.16 The Square will be delineated by surrounding commercial, civic and community buildings. These include a hotel; the school and health centre; shops; taller residential buildings; café bars and restaurants. The Square will be the focus of pedestrian routes within the development and could provide an arena for many of the cultural events and religious festivals that currently take place on Southall's streets.

3.7.17 The Central Park in the south west of the Site will have a central space with sports facilities surrounded by different character areas.

Building Typologies

3.7.18 There will be total of five building typologies for the Scheme. These are outlined below and shown on Figure 3.5a and b.

Apartments

3.7.19 Building Typology 1 is located along the Grand Union Canal at the western edge of the Site and presents open courtyard spaces to the canal to maximise views and offer a varied elevation to the canal and Minet Country Park. The blocks rise toward the canal and are lower toward the 'Home Zone'. Full basement or undercroft car-parking within the apartment blocks will be provided, with on street parking provided for the two and three bedroom duplex apartments within the link blocks.

3.7.20 Each finger typology block has differing minimum and maximum storey heights, with the minimum between four storeys and seven, and the maximum between six and eight storeys. The link blocks have heights that are a minimum of two storeys lower than the elevations to which they link.

3.7.21 Building Typology 2 are residential buildings that comprise fingers of accommodation perpendicular to the western edge of Central Park with lower link blocks between facing the residential street and Central Park.

3.7.22 Building Typology 2 has closed courtyards. The fingers rise toward the park and are lower toward the residential street. The gardens will be communal with basement or under-croft car parking below. Two and three bedroom duplex apartments will be provided with on street parking for these dwellings.

3.7.23 Running between the two apartment typologies (typologies 1 and 2) parallel to the canal will be a shared surface 'Home Zone' comprising a residential street of integrated vehicular and pedestrian spaces. (See paragraph 3.11.12 for a further description).

3.7.24 Each block has differing minimum storey heights with the minimum overall being between three and six storeys, and the maximum between seven and ten storeys. The link blocks have heights that are a minimum of two storeys lower than the elevation they link.

Houses

3.7.25 Building Typology 3 comprises townhouses located at the northern and southern edges of the Scheme.

3.7.26 The houses to the north are more urban in their character; set in streets close to the High Street, they will blend into the existing grain around Beaconsfield Road in respect of their scale and configuration. The southern houses are set fronting the park. South facing rear gardens will also incorporate garages that will act as an environmental buffer to the noise from the railway.

3.7.27 The townhouse accommodation will be spread over three or four storeys dependant on types as follows:

- 3a: four bedrooms with front yard for parking one car and rear garden incorporating a detached garage by the railway
- 3b: four bedroom house with integral garage, front yard parking for a second car and rear garden
- 3c: five bedroom house with integral garage, front yard for parking for a second car and rear garden.

Mixed use Buildings

3.7.28 Building Typology 4 are mixed use buildings located around East Street and the Canal Zone providing commercial uses at street level with residential accommodation located above. The majority of these buildings range between a minimum of three storeys and a maximum of six storeys, with the exception of blocks HS.11 which will be between a minimum of five storeys and a maximum of twelve storeys. HS.12 and HS.13 will range between a minimum of five storeys and a maximum of ten, and HS.11 will range between a minimum of three storeys and a maximum of eight storeys in height.

Building Typology 5

3.7.29 Building Typology 5 are other buildings with individual characteristics as follows:

- Building Typology 5.1 will be a hotel/conference/banqueting building on the town square
- Building Typology 5.2 is a combined school and health centre within a single building and an associated educational block.

- Building Typology 5.3 is a residential building incorporating a taller element facing the town square aligned with East Street and a lower block aligned with Park Street.

- Building Typology 5.4 (cinema), Typology 5.5 (multi-storey car-park with office/studio units) and Typology 5.6 (energy centre). Each is aligned with the railway to create a buffer between the railway and the public space. The trio of buildings rooflines are common to ensure visual consistency with the single exception of the energy centre stack. These buildings are between 4 and 6 storeys in heights.

- Building Typology 5.7 (retail unit) and Typology 5.8 (sports pavilion) are comparable pavilions within the Scheme. The sports pavilion is a two storey building accommodating changing facilities.

3.8 Proposed Access Routes

3.8.1 New vehicular accesses to the Site are an essential prerequisite if the levels of development required to provide a viable and deliverable scheme are to be achieved. To create dispersal of traffic, two additional link roads are proposed, one to the east and one to the west.

3.8.2 These access routes are depicted on the Composite Development Area Parameter Plan, reproduced as Figure 3.4a and the Road Layout Parameter Plan, reproduced as Figure 3.4n, and are detailed below.

Pump Lane Bridge

3.8.3 The Pump Lane Bridge is a safeguarded transport corridor in the LB Hillingdon UDP (Policy AM4) [(3.2)]. Shown in Figure 3.6, Pump Lane Bridge forms the southernmost of the routes and the principal access to the Site from the west. It would extend from the southwest corner of the Main Site bridging over the Canal and Brook, joining Pump Lane at its junction east of the A312 Hayes bypass. It includes a 7.3m wide carriageway with 2.0m wide footpaths on both sides.

3.8.4 The application for this access includes drainage, a flood relief pond and bridge over the Yeading Brook and Grand Union Canal.

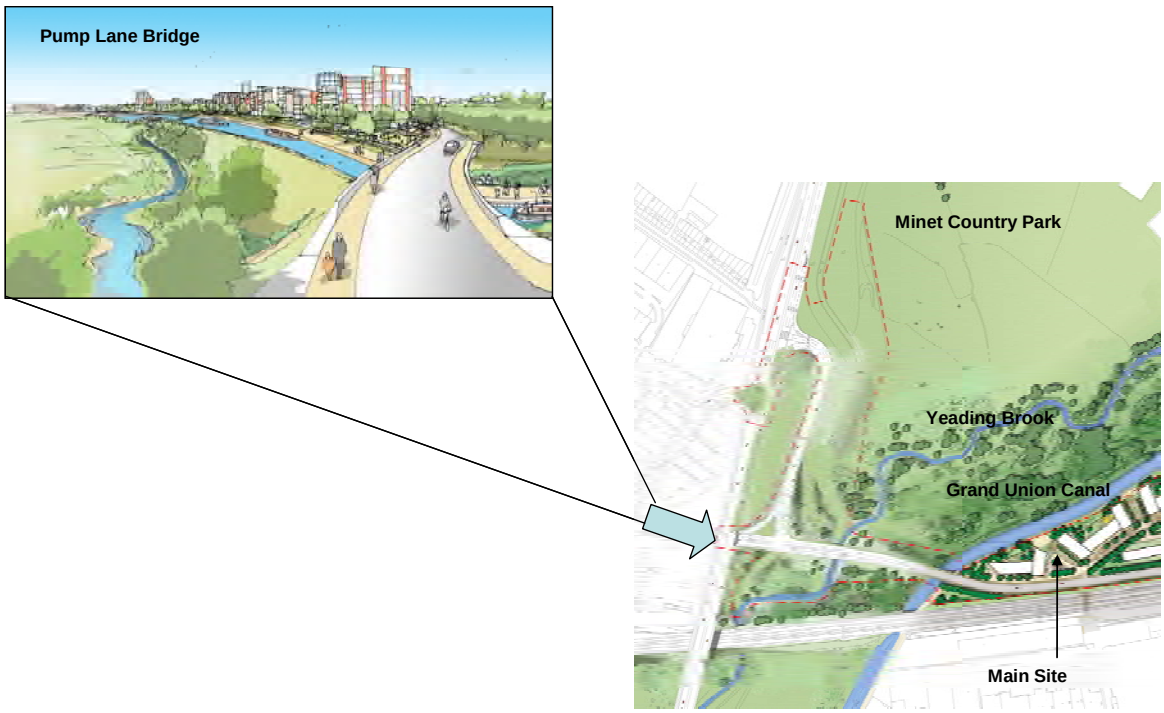


Figure 3.6 Pump Lane Bridge

Eastern Access

3.8.5 The Eastern Access falls entirely within LB Ealing and comprises a new road connecting the Site to South Road via The Crescent. The Eastern Access is shown in Figure 3.7.

3.8.6 The proposals include creating a new junction on South Road, approximately 100m south of the junction with Park Avenue. South Road will be widened to two lanes in each direction between Park Avenue, through the new junction and over the railway line to the junction with The Green.

3.8.7 The alignment of the new road requires the demolition of 15 existing residential properties contained within The Crescent together with a small commercial property plus six dwellings on the eastern side of Randolph Road. The heritage value of these dwellings has been assessed and the findings are presented in Chapter 15: Archaeology and Chapter 16: Built Heritage. The acquisition and demolition of these buildings is required to facilitate the new accesses to the Site. This may be achieved either through direct negotiation with the existing owners or through a Compulsory Purchase Order (CPO) which would be the subject of separate proceedings to the determination of the Planning Application.

Figure 3.7 Artists Impression of the Eastern Access

The Pedestrian Footbridges

3.8.8 Springfield Road Bridge (0.61Ha) would form the northern-most access and egress to the Site. Figure 3.8 shows the aerial plan and an artist's impressions of the design of this bridge which would provide a new combined pedestrian and cycle route. The bridge would span the Canal and the Yeading Brook to link the new residential development via Springfield Road with Hayes and Yeading. At the western end of the bridge, an embankment forms the slightly elevated western link to Springfield Road alongside the boundaries of the Yeading FC football ground.

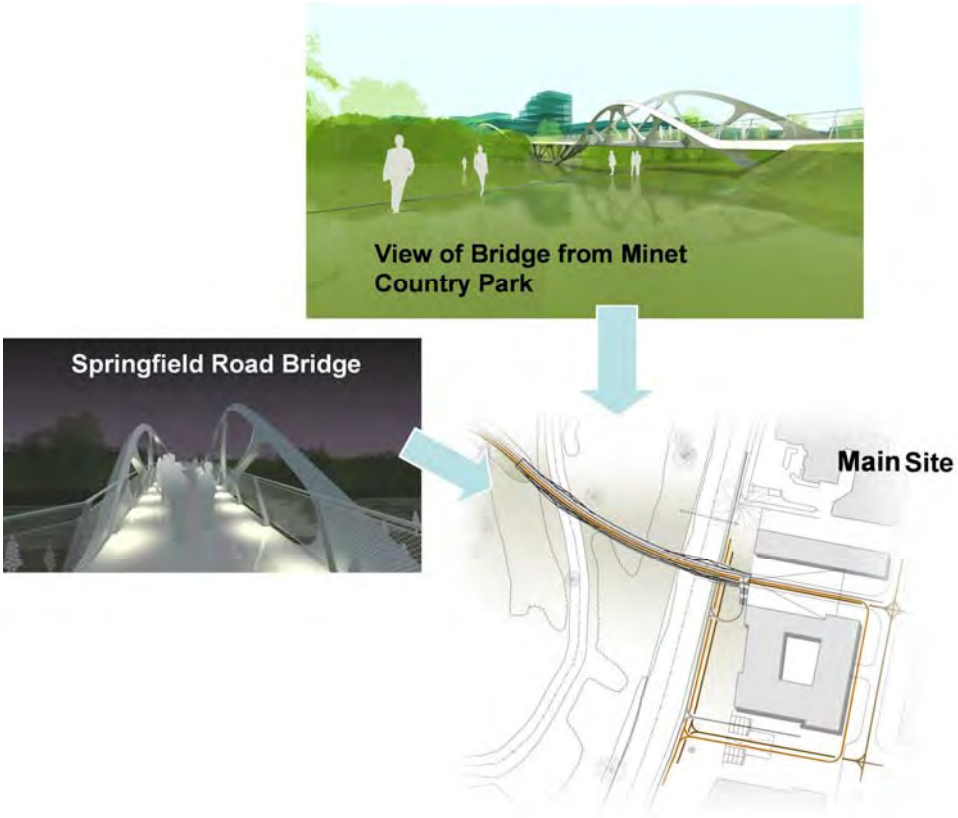


Figure 3.8 Springfield Road Bridge

3.8.9 A second pedestrian and cycle crossing, the Minet Country Park Bridge (0.60Ha), shown in Figure 3.9, is proposed to the south of the proposed Springfield Road Bridge. This would cross the swathe of open land with trees and scrub between the Canal and Yeading Brook to create a pedestrian and cycle link between the Minet Country Park, the Canal towpath and the Main Site. Both of these access routes are also shown in Figure 3.4n.

Figure 3.9 Minet Country Park Bridge

Off-Site Highway Works

3.8.10 The redevelopment of the Site has been discussed with the Highways Authority and TfL over the past two years. These discussions have resulted in the promotion of significant off-site highway improvements at key junctions, notably on the A312 corridor (Junction 3 of the M4 and the Bulls Bridge Roundabout) and along South Road.

M4 Junction 3

3.8.11 The proposals include general widening on the northern, southern and western approaches to this junction along with the circulatory carriageway. It is envisaged that the works will be implemented through a Section 278 Agreement, with the timing subject to a condition or Section 106 Agreement.

Bulls Bridge (A312 / Hayes Road)

3.8.12 The proposals include creating additional capacity though converting the roundabout into a 'Hamburger' junction, along with some widening on the northern approach. As with the M4 J3 works, it is anticipated that the works will be implemented through a Section 278 Agreement. It is envisaged that the works will be carried out at different times to those for the M4 J3 junction to avoid adverse disruption or traffic delays during these highways improvements.

South Road Railway Bridge

3.8.13 The proposals include widening the South Road between Park Avenue and Merrick Road, which includes the bridge over the mainline railway. Although these will form part of the detailed planning for the Eastern Access, they are likely to be carried out in phased manner.

3.9 Proposed Circulation

3.9.1 The spatial hierarchy of the proposed new roads and streets is derived from their use and location; this informs the character of the Scheme's connecting areas within and beyond the Site boundaries. This relationship is shown on Figure 3.10.

3.9.2 The primary vehicular route through the Site will provide dedicated access and egress to the existing Pump Lane junction to the west on the Hayes By-pass (A312) (Figure 3.10 access A). The Hayes By-pass has excellent connections to the existing arterial road network and therefore it will be a primary access route, especially for vehicles servicing the commercial components of West Southall.

3.9.3 Vehicular access to the east will be improved through re-configuration of the existing road and junction through demolition of The Crescent and six terrace houses on the east side of Randolph Road (Figure 3.10 access B).

3.9.4 Through the Site the character of the primary route changes from east to west from the main retail street (the 'High Street'), through The Square toward the Canal and the Central Park. In the High Street the concentration of retail activity, frequency of crossings and the shared surface of the Town Square will reduce vehicle speeds and discourage its use as a through-route.

3. 9.5 The primary, secondary and tertiary routes will be arranged as shown on the Road Layout Parameter Plan, provided as Figure 3.4n. The Bus and Cycle Network Parameter Plan similarly ties these routes to those depicted in Figure 3.4o.

Primary routes, spaces and destinations

3.9.6 At the eastern end of the High Street is a pair of connected spaces that create the gateway to South Road and Southall Station. The reconfigured road creates an effective junction for vehicles joining South Road and a welcoming public place through which pedestrians using the station and buses will pass (see Figure 3.10, access B). A pedestrian-oriented route north of the Water Tower, shared only by east-bound buses, flows to a public place at the end of the High Street and provides a route to the Central Park. Surrounded by cinema, café bars, restaurants, retail, office and residential accommodation this public place is intended to act as a lively local hub through which many people will pass.

3.9.7 The Square will be located at the confluence of routes from the High Street, Trinity Road leading north to The Broadway, the Canal and the pedestrian route to the Central Park (see Figure 3.10, access C).

3.9.8 Running alongside of the Central Park a further primary route is proposed (a boulevard) lined by residential accommodation which connects the western approach with the Town Square (see Figure 3.10, access D). Between the head of the Central Park and the Town Square, traffic will be reduced to ensure a pedestrian-oriented connection.

3.9.9 Where the Springfield Road Bridge crosses the Canal (see Figure 3.10, access E) a leisure destination will be created due to the concentration of pedestrian movement around moored narrow-boats, vibrant café bars and the west-facing aspect to the Minet Country Park.

3.9.10 The towpath along the Canal will be redeveloped in accordance with the GLA's Blue Ribbon policy; such enhancements will encourage greater use of this route.

Secondary Routes

3.9.11 The route between the eastern gateway by the gasholder to the Central Park will be animated east to west by: small scale retail; multi-storey car park; residential entrances; workplace studios; health centre/primary school; and the head of the Central Park (see Figure 3.10, access F).

3.9.12 The existing route under the railway will be extended through the Park, over the Canal and Yeading Brook to the Minet Country Park (see Figure 3.10, accesses G and H).

Tertiary Routes

3.9.13 The existing cul-de-sac streets to the north of the Site will be extended to link with the High Street. The streets off the proposed High Street will integrate fine grain retail, office or residential accommodation on the ground floor to encourage pedestrian movement.

3.9.14 The residential accommodation adjacent to the Canal has a network of green spaces. Ground floor accommodation will be accessed directly from the street, complemented by landscape design and parking areas that ensure the streets offer passive surveillance and places for people to meet.

Car Parking

3.9.15 It is envisaged that the overall parking ratio will be in the region of 0.7 spaces per dwelling across the site (i.e. up to a maximum of 2,625 spaces), with some apartments having no parking, ranging up to a maximum of 2 spaces for larger units.

3.9.16 There will be a mixture of on-street and off-street parking with provision being made adjacent to dwellings or in communal areas as appropriate. Some of the off-street parking will be provided within the two multi-storey car parks, whilst other spaces will be provided in courtyards or basements. A plan of car parking allocations is shown in Figure 3.11

Residential cycle Parking

3.9.17 The proposals include providing parking for at least one cycle per dwelling in line with the minimum standards as set out in The London Plan and LB Ealing's UDP.

'Town Centre' Car Parking

3.9.18 The proposals include a mixture of on-and-off street parking to facilitate the anticipated demand along with the latent demand evident within Southall Town Centre.

3.9.19 The proposals include up to 830 spaces for cars including approximately 30 on-street spaces.

3.9.20 The majority of the spaces will be provided for in two multi-storey car parks. The Eastern Multi-Storey Car Park, located to the east of the gasholder will provide 350 spaces and will be privately managed. The Central Multi-Storey Car Park will provide approximately 380 spaces to serve the supermarket and the new high street retail.

3.9.21 A small surface car park adjacent to the cinema will provide approximately 70 spaces and 30 on-street short stay spaces will be assigned for special needs parking.

3.9.22 Cycle stands are proposed to be located in key positions throughout the development. Of these, many spaces will be provided under cover.

Hotel Parking

3.9.23 The proposals include a total of 120 dedicated basement parking spaces for the hotel and banqueting facility along with spaces for cycles.

Disabled Access

3.9.24 One aim of the West Southall Scheme is to provide an inclusive environment throughout. Therefore, the term 'disability' has been considered in its broadest sense and includes impaired mobility, sight or hearing.

3.9.25 The Site is effectively level, coincident with access points on Beaconsfield Road to the north, Brent Road to the south and the existing eastern access. The towpath however, is approximately 1.8m above the site level and care will be taken to integrate stepped and ramped access at all points where there is a level transition at the Canal.

3.9.26 The public route at the Eastern Access follows the gradients of the street to offer gradual access between the development, South Road and the station, as an alternative to the stepped route.

3.9.27 Landscaping will consider ease of access, with either raised tables in the carriageway at street crossing points or dropped kerbs. There will be step-free access to all floors and lifts, except to the duplex residential apartments and to maintenance areas. Accessible parking spaces will be provided throughout.

3.9.28 Further information on access considerations within the West Southall scheme is provided in the Design and Access Statement (DAS) submitted separately with the planning application.

3.10 Urban Design

3.10.1 The Design Principles for the Scheme are set out fully in the Design and Access Statement (DAS).

3.10.2 Currently, the existing West Southall Site has a number of physical constraints including: the restrictions of the operational gasworks; the railway forms a barrier to the south of the Site; the Canal acts as a boundary to the west; and, there are other constraints such as the limited connectivity from the existing road network and poor linkages to the Minet Country Park. The design of the Scheme has therefore considered these constraints and the proposals have exploited the following opportunities:

- Extending the urban grain to the north and integrating the Site with the existing developments to the north;
- Utilising the close proximity of the Site to Southall Station;
- Extending the Minet Country Park into the Site; and
- Activating the Canal towpath and using the Canal.

3.11 Landscaping and Public Realm

3.11.1 The DAS outlines in detail the full landscape and public realm strategy. In summary, a number of character areas have been defined across the extent of the West Southall Development. A range of land uses and activities are included within these different areas which assist in defining the general feel and character of the area. The following section sets out a brief description of principal Landscape Character Areas, whilst Figure 3.12 identifies their location.

Eastern Gateway

3.11.2 The Eastern Gateway will signify the arrival to West Southall and will aid in its identification. Feature paving, feature facades, special effect lighting, connections and movement zones will aid orientation and way finding.

East Street/West Street

3.11.3 East Street and West Street form the High Street. The focus of East Street is local shopping, leisure and business with apartments on upper floors. West Street provides opportunities to eat and drink and forms an arrival for the active canal side.

3.11.4 The streets will be defined by a green spine of semi-mature trees planted within the pavements and central reservation to create a boulevard character.

Town Square

3.11.5 The Town Square will create a social space that responds to the culture, character and activities of Southall. It will be a 'destination' and provide a space for events and local festivals. It will also be a space to meet, dwell, take a break, eat and drink and engage with West Southall.

Park Street

3.11.6 Park Street will be the primary movement corridor linking north and south. It is intended to be the 'green spine' which opens up in areas to define and highlight destination spaces. The park boulevard will create a distinct identity through the use of high quality materials and semi-mature trees.

Central Park

3.11.7 The central park will be an urban retreat that is strategically located to provide easy access for all. It will include a wetland area, sports pavilion, structured play, village green, ornamental gardens, allotments and public open space for informal recreation.

Canal Zone

3.11.8 The active waterfront will provide a space to meet, dwell and enjoy waterside day and night activity. The Springfield Road Bridge will provide effective and safe linkages to the wider area and increase permeability. To the north west of the Site, the canal front will be animated with bars and restaurants and overlooked by apartments on the upper floors with views over Minet Country Park.

3.11.9 Overlooked by apartments, the passive canal front has an informal towpath with Minet Country Park adjacent. Calm natural habitats and tranquil edges will provide important habitat and recreation spaces. The pedestrian bridge link mid-way along the canal will connect this area to Minet County Park, improving pedestrian and cycle access.

Home Zone (Play Streets) and Local Parks

3.11.10 Home Zones provide an area where outdoor play in a safe street can occur with pedestrian priority. Shared surfaces will create usable landscape play zones and act as a community resource. The local pockets of open space provide opportunities for social engagement and integration.

Communal Residential Courtyards

3.11.11 The Communal Residential Courtyards will provide safe and secure green spaces to relax, play and enjoy. They are intended to be spaces to gather with friends and neighbours, for informal rest and wellbeing as well as green places for wildlife.

Built Edge

3.11.12 Along the southern boundary of the Site, where the railway line severs West Southall from Southall, an acoustic barrier will be provided as a buffer to the residential environment. Opportunities for biodiversity through green walls can be juxtaposed with interactive edges with special effect lighting and media walls.

3.12 Open Space

3.12.1 The needs of existing local residents and future residents of West Southall to access quality green spaces have been assessed during the Scheme design process. This included determining the need for an appropriate amount, structure and balance of private and quality publicly accessible open space. Such space includes both formal (including all weather surfaces) and informal play and also public realm. The amount, type and siting of Public and Private Realm is controlled by limits set out in the corresponding Parameter Plan shown in Figure 3.4p.

3.12.2 The Development Proposals include Local Parks containing Local Equipped Areas of Play (LEAPs) and Neighbourhood Equipped Areas of Play (NEAPS). These will be located within 400m of all residential properties. Communal amenity areas will also be provided for the flats, resulting in 58% of the Site consisting of landscaped open areas rather than buildings.

3.12.3 In addition, it is also proposed to provide formal five-a-side play pitches and the pedestrian links across the Yeading Brook and Canal will provide access to sports and other facilities at the Minet Country Park.

Play Areas

3.12.4 The Play Strategy comprises three primary aspects:

- Structured play – These are organised play spaces. They include playgrounds, sports pitches and multi-use games areas.

- Educational – The community gardens, communal residential gardens and wetland area can provide opportunities for educational play. They can help make children aware of sustainability and ecology.

- Unstructured play – A variety of informal play and recreation can occur across the Site within the open spaces that are designed to create a safe and welcoming environment for all user groups.

Lighting

3.12.5 A combination of safety and special effect lighting design within the public and private realm will extend the attraction after dark and into the winter months. Uplighters, street lights, wall mounted lights and illuminated bollards will be designed into the scheme to create a seamless and well integrated environment.

3.13 Sustainability

3.13.1 West Southall is intended to represent a model of sustainable design, meeting the needs and aspirations of the community now and also for future generations. The Scheme will address sustainability through a number of benchmarks and measures, as summarised below. The full sustainability objectives for West Southall are described in more detail in the Sustainability Statement that is submitted with the planning application.

Code for Sustainable Homes (CSH) and BREEAM

3.13.2 The Code for Sustainable Homes (CSH) is the single national standard for appraising sustainable new homes to improve environmental performance. The code covers predicted Carbon Dioxide (CO_2) emissions, energy (including embodied energy in construction materials), water use, waste generation, and the use of low polluting materials and processes. The Applicant will endeavour for all dwellings to achieve level 4 of the CSH where feasible.

3.13.3 Building Research Establishment Environmental Assessment Method (BREEAM) is used to measure the environmental performance of new and existing buildings, including commercial buildings, retail units and schools. BREEAM Excellence will be achieved by all non-residential buildings.

Water use

3.13.4 Where feasible, residential dwellings will be designed to use no more than 105 litres/person/day in accordance with CSH Level 4 requirements and the development will aim to gain BREEAM 'excellent' rating for water efficiency within retail facilities.

3.13.5 Potable water usage within the hotels and other leisure buildings will be minimised through the use of high efficiency sanitary appliances, using CSH requirements as a guide.

3.13.6 The above will be achieved by implementing the following measures:

- efficient fixtures and fitting such as dual flush toilets, aerating taps and showers and water efficient washing machine (approx 40 litres per cycle);
- the use of smart meters that allow residents to easily understand how much water they are using will be explored;
- all homes with private outdoor space will be provided with a water butt and harvested rainwater will be used for flushing toilets and in washing machines; and
- home user guides will include advice on minimising water use.

Carbon Reductions and Energy

3.13.7 It is an aspiration of the Applicant to meet at least a 44% reduction in Carbon Dioxide emissions in line with CSH Level 4.

3.13.8 At least 20% of total building energy (electricity and heat) demand will be met by renewable sources. This target will be met from Phase 1 onwards.

3.13.9 All buildings will be as energy efficient as possible through a number of key design features, including ensuring that building orientation moderates the effects of wind and sun whilst making seasonal use of both as appropriate. High performance insulation/materials will be used to reduce demand for heating and reduce summer over heating, together with high levels of air tightness and the use of passive and mechanical ventilation systems.

3.13.10 High-efficiency appliances and fittings will be incorporated including those fitted in communal areas and green roofs. Street trees and landscaping will be implemented to combat urban heat island effects as discussed in the DAS.

3.13.11 Two alternative options are proposed for the on-site provision of energy, these are as follows:

Turbo Expander

3.13.12 The preferred energy strategy is a new technology, a Combined Cycle Biofuel Electricity Generation (CCBG) (often referred to as a Turbo Expander). The facility is proposed to be incorporated into the building allocated for 'Energy Centre' to the east of the National Grid operational compound. The CCBG facility is part of a separate planning application being submitted by Blue-NG (a joint venture between National Grid Blue Power Ltd and 20C Ltd).

3.3.13 The facility will produce between approximately 15-20MW of electricity. The fuel source for the CCBG is biodiesel and therefore renewable. The system would be connected to the grid to allow for the export of excess power to the National Grid. The CCBG system could potentially provide 100% of the Proposed Scheme's energy requirements.

CHP Biomass

3.3.14 In order for the Scheme to be independent of planning permission being secured for the Blue-NG CCBG, proposals for an alternative CHP Energy Centre have been accommodated in the Site. The 'West Southall Energy Centre' would comprise a biomass boiler installation of a capacity of 2200kW (2.2MW) which would meet at least 20% renewable energy requirements.

Transport

3.13.15 A Framework Travel Plan has been developed by the Applicants' Transport Consultants (See Appendix 8.2). This Travel Plan will work towards achieving no more than 40% of all trips by car, a minimum of 20% of all trips on foot and a minimum of 5% of all trips by bicycle.

3.13.16 The Scheme has been designed to encourage a sustainable approach towards travel as all parts of the development will be easily accessible by public transport (buses and rail) and a range of retail, community and leisure uses will be provided within walking distance of all residential dwellings.

3.13.17 The street design and layout of the development accords with the Manual for Streets and Building for Life [(3.5)] and aims to give pedestrians and cyclists priority over cars. The street design and road infrastructure has been designed on the basis of the Framework Travel Plan. Cycle storage will be provided throughout the development and secure cycle storage will be provided for every dwelling.

References

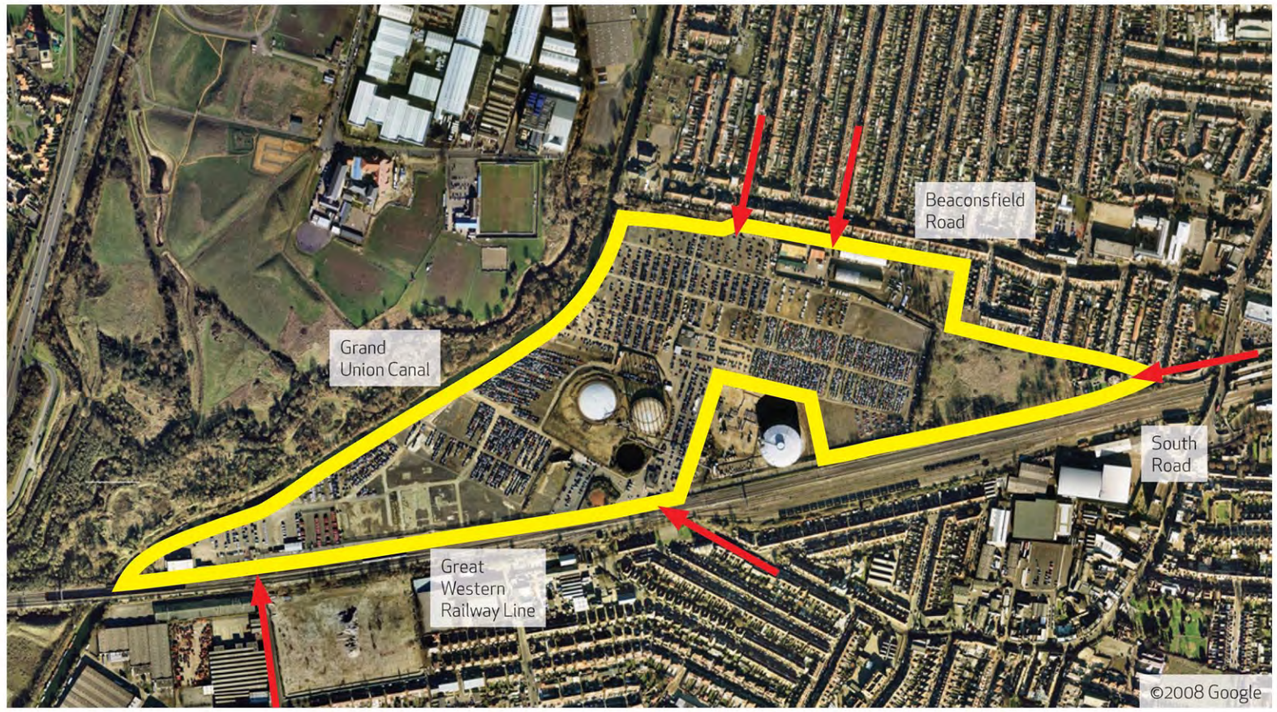
3.1 London Borough of Hillingdon (1998) Unitary Development Plan. Saved Policies 27th September 2007.

3.2 Department for Communities and Local Government (2006) Circular 01/2006. Environmental Impact Assessment: A guide to good practice and procedures. June 2006.

3.3 The Greater London Authority (2008) The London Plan - Spatial Development Strategy for Greater London- Consolidated with Alterations since 2004.

3.4 London Borough of Ealing (2004) A New Plan for the Environment. Unitary Development Plan (UDP) Saved Policies September 2007

3.5 Department for Communities and Local Government and Department for Transport (2007) Manual for Streets. Thomas Telford 2007



Reproduced from Make, 2008

RPS

Date:	02.09.08	Scale:	NTS	Rev:	
Job No:	JLD0211	Drawn:	MB	Checked:	CC

Project: West Southall

Title: Main Site Boundary and Existing Access Routes

Figure No: Figure 3.1

www.rpsgroup.com

Drawing Ref:

North

Key

- Green Belt
- Statutory listed buildings
- Locally listed buildings
- Building of facade or group value
- Nature Conservation Sites of Metropolitan or Borough Importance
- Conservation Area
- Public rights of way
- Major open area
- Green corridor

RPS

Date:	09.01.08	Scale:	NTS	Rev:	
Job No:	JLD0211	Drawn:	RD	Checked:	CC

Project: West Southall

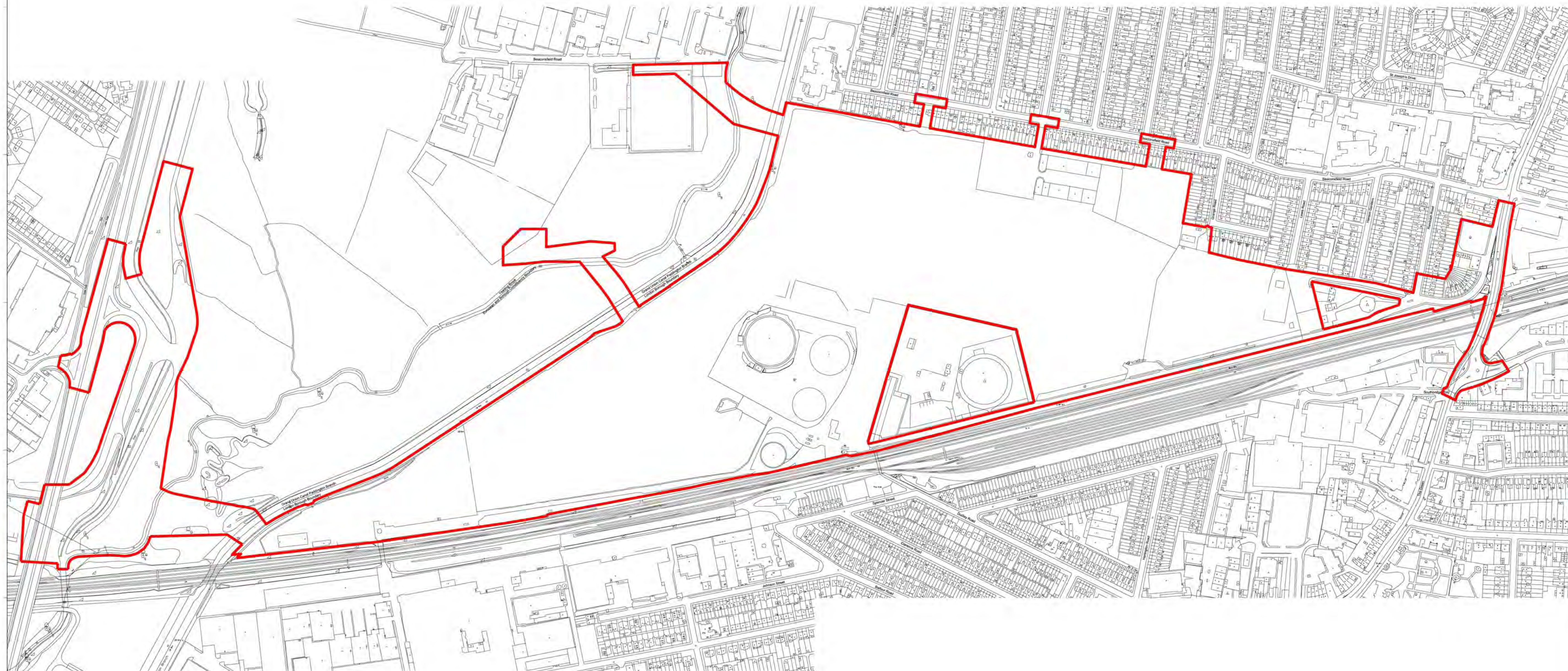
Figure No: Figure 3.3

Title: Designated Land and Features

Drawing Ref:

General Notes
1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:
Composite Development Area boundary



0 20m 40m 60m 80m 100m 150m
1:2000

Rev	Date	Reason For Issue	Chk

make
20 Wharfside Street, The Mailbox
Birmingham, B1 1RD

tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

North

Project
West Southall Masterplan

Drawing Title
Composite Development Area

Figure 3.4a

Scale	Paper Size	Date
1:2000	A0	29.08.08

Project No.	Draw No.	Rev No.
0317	P1000	00

General Notes

1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:

- Composite development area boundary
- Plot boundary
- Apartments
- Town house
- Education
- Retail (A1-A5)
- Studio/office
- Cinema
- Parking
- Conference/banqueting and hotel entrance
- Sports pavilion
- Energy centre/public information facility
- Retail/office
- Public realm including highway

Yeading Football Club ground layout is shown in proposed location

0 20m 40m 60m 80m 100m 150m

1:2000

Rev	Date	Reason For Issue	Chk

make

20 Wharfside Street, The Mailbox
Birmingham, B1 1RD

tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

North

Project
West Southall Masterplan

Drawing Title
Predominant ground floor uses

Figure 3.4b

Scale	Paper Size	Date
1:2000	A0	29.08.08

Project No.	Draw No.	Rev No.
0317	P1002	00

General Notes

1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:

- Composite development area boundary
- Plot boundary
- Apartments
- Town house
- Health centre
- Retail (A1-A5)
- Studio/office
- Cinema
- Parking
- Conference/banqueting and hotel entrance
- Sports pavilion
- Energy centre/public information facility
- Retail/office
- Public realm including highway

Yeading Football Club ground layout is shown in proposed location

0 20m 40m 60m 80m 100m 150m

1:2000

Rev	Date	Reason For Issue	Chk

make

20 Wharfside Street, The Mailbox
Birmingham, B1 1RD

tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

North

Project
West Southall Masterplan

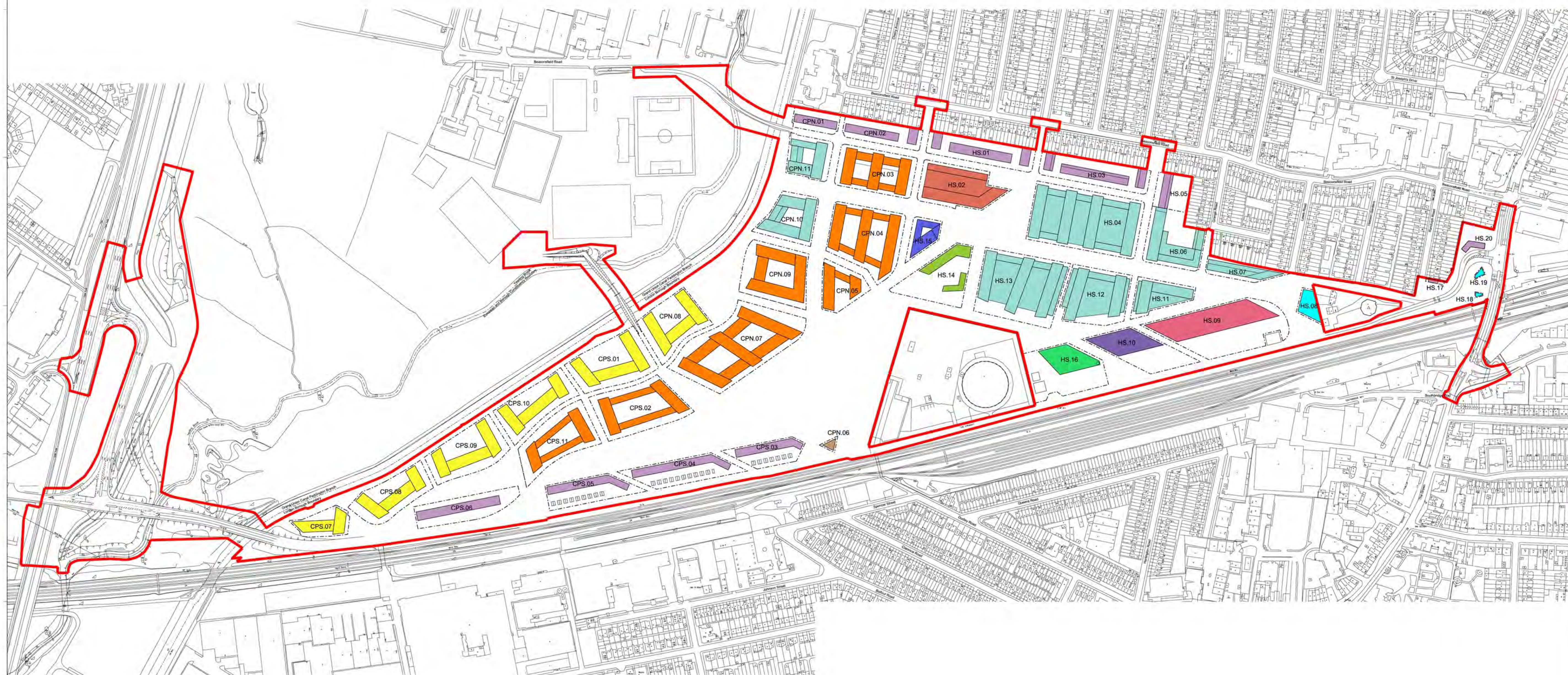
Drawing Title
Predominant upper floor uses

Figure 3.4c

Scale	Paper Size	Date
1:2000	A0	29.08.08

Project No.	Draw No.	Rev No.
0317	P1003	00

General Notes
1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.



Key:
- Composite development area boundary
- Plot boundary
- Typology 1 - Apartment buildings
- Typology 2 - Apartment buildings
- Typology 3 - Mixed use buildings
- Typology 4 - Townhouses
- Typology 5.1 - Hotel, banquet hall and residential
- Typology 5.2 - School and health centre
- Typology 5.3 - Tall residential building
- Typology 5.4 - Cinema
- Typology 5.5 - Multistorey carpark
- Typology 5.6 - Energy centre/public information facility
- Typology 5.7 - Retail unit
- Typology 5.8 - Sports pavilion

Yeading Football Club ground layout is shown in proposed location

0 20m 40m 60m 80m 100m 150m
1:2000

Rev	Date	Reason For Issue	Chk
00	xxx	For information	

make
20 Wharfside Street, The Mailbox
Birmingham, B1 1RD
tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

North

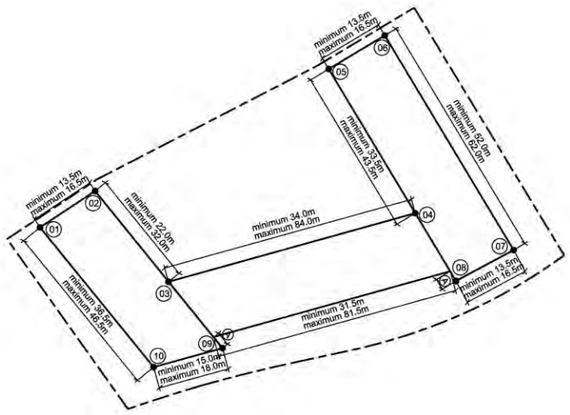
Project
West Southall Masterplan

Drawing Title
Building typology plan

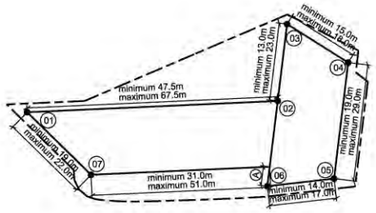
Figure 3.4d

Scale	Paper Size	Date
1:2000	A0	29.08.08

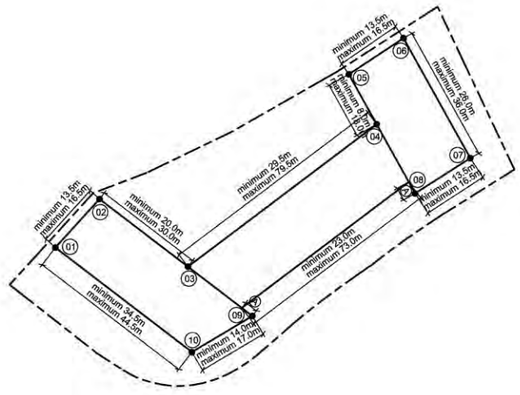
Project No.	Draw No.	Rev No.
0317	P1004	00



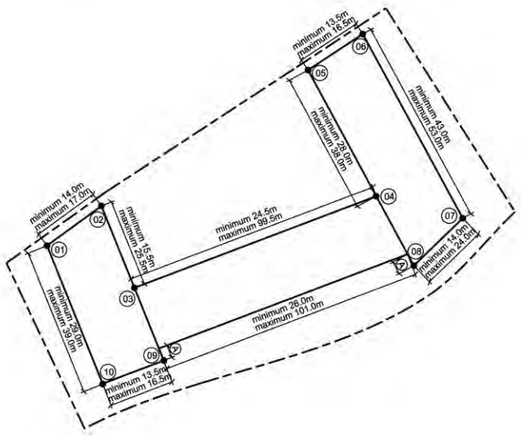
01 CPS.01
1:500



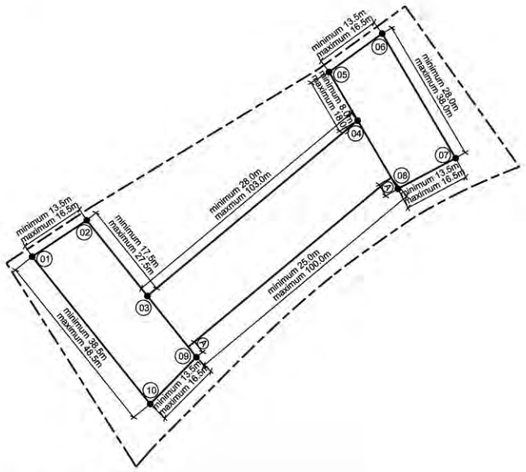
02 CPS.07
1:500



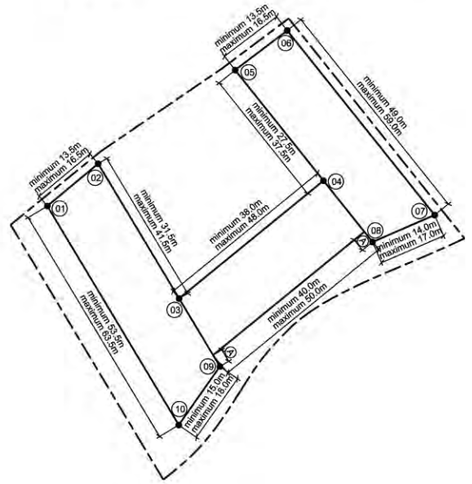
03 CPS.08
1:500



04 CPS.09
1:500



05 CPS.10
1:500



06 CPN.08
1:500

General Notes
1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:

- Plot boundary
- AOD Above ordnance datum
- Typology 1 - Apartment buildings
- Composite development area boundary

Site datum 32.00m AOD +/-1m

0 5m 10m 15m 20m 25m 40m
1:500

Rev	Date	Reason For Issue	Chk
00	xxx	For information	

CPS.01

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11368.353, 79722.276	56.0m (6 storeys)	66.5m (8 storeys)
02	11381.002, 79730.629	56.0m (6 storeys)	66.5m (8 storeys)
03	11397.842, 79709.794	48.5m (5 storeys)	63.5m (7 storeys)
04	11454.500, 79725.543	48.5m (5 storeys)	63.5m (7 storeys)
05	11434.632, 79758.631	56.0m (6 storeys)	66.5m (8 storeys)
06	11447.505, 79766.332	56.0m (6 storeys)	66.5m (8 storeys)
07	11477.080, 79717.076	48.5m (5 storeys)	56.0m (7 storeys)
08	11463.845, 79709.979	48.5m (5 storeys)	56.0m (7 storeys)
09	11410.236, 79694.554	48.5m (5 storeys)	56.0m (7 storeys)
10	11394.442, 79690.203	48.5m (5 storeys)	56.0m (7 storeys)

CPS.07

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	10992.522, 79507.900	56.0m (7 storeys)	56.0m (7 storeys)
02	11050.045, 79510.487	48.5m (5 storeys)	56.0m (6 storeys)
03	11052.194, 79528.134	56.0m (6 storeys)	56.0m (7 storeys)
04	11066.230, 79519.306	56.0m (7 storeys)	56.0m (7 storeys)
05	11062.986, 79492.670	48.5m (5 storeys)	56.0m (6 storeys)
06	11047.662, 79490.919	48.5m (5 storeys)	56.0m (6 storeys)
07	11007.193, 79493.545	56.0m (7 storeys)	56.0m (7 storeys)

CPS.08

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11078.658, 79535.823	53.0m (6 storeys)	66.5m (8 storeys)
02	11088.797, 79547.052	56.0m (6 storeys)	66.5m (8 storeys)
03	11109.097, 79531.520	48.5m (5 storeys)	63.5m (7 storeys)
04	11152.422, 79564.212	48.5m (5 storeys)	66.5m (8 storeys)
05	11146.034, 79575.682	56.0m (6 storeys)	66.5m (8 storeys)
06	11158.580, 79583.985	53.0m (6 storeys)	66.5m (8 storeys)
07	11173.919, 79556.443	48.5m (5 storeys)	56.0m (7 storeys)
08	11161.256, 79548.352	48.5m (5 storeys)	56.0m (7 storeys)
09	11123.890, 79520.203	48.5m (5 storeys)	56.0m (7 storeys)
10	11010.007, 79511.937	48.5m (5 storeys)	56.0m (7 storeys)

CPS.09

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11180.737, 79598.843	56.0m (7 storeys)	66.5m (8 storeys)
02	11193.234, 79607.962	56.0m (7 storeys)	66.5m (8 storeys)
03	11200.809, 79589.172	48.5m (5 storeys)	63.5m (7 storeys)
04	11256.318, 79610.209	48.5m (5 storeys)	63.5m (7 storeys)
05	11240.667, 79639.149	56.0m (6 storeys)	66.5m (8 storeys)
06	11253.225, 79647.443	56.0m (6 storeys)	66.5m (8 storeys)
07	11276.179, 79605.149	48.5m (5 storeys)	56.0m (7 storeys)
08	11264.925, 79594.306	48.5m (5 storeys)	56.0m (7 storeys)
09	11207.559, 79572.475	48.5m (5 storeys)	56.0m (7 storeys)
10	11193.536, 79567.093	48.5m (5 storeys)	56.0m (7 storeys)

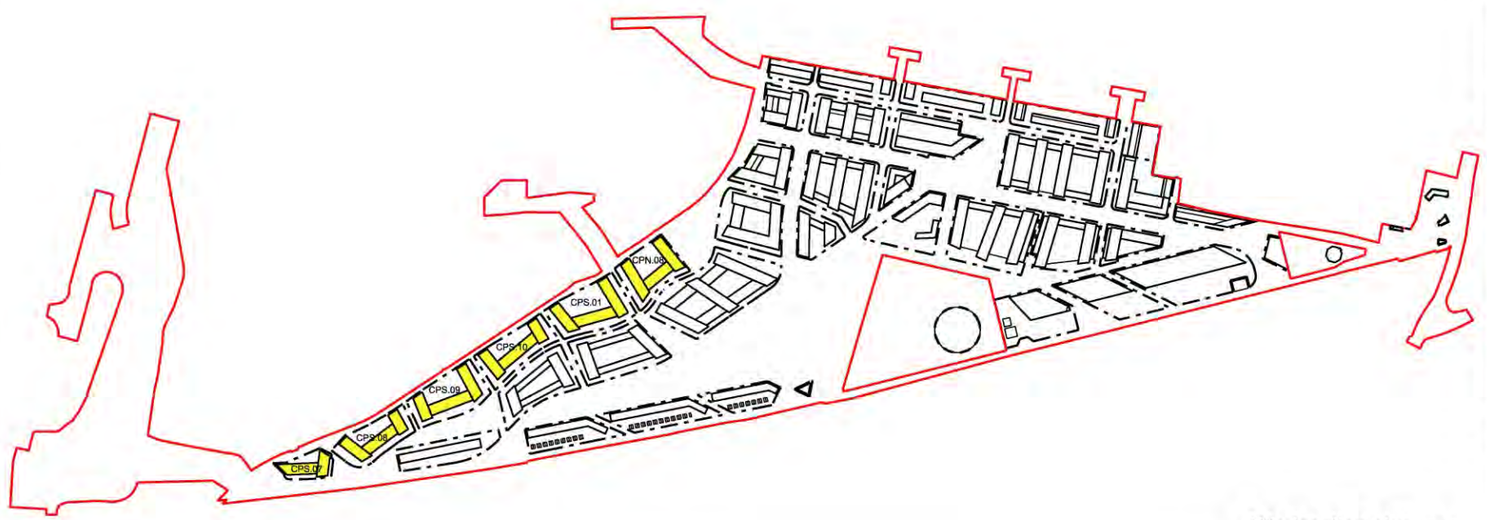
CPS.10

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11270.173, 79658.636	56.0m (6 storeys)	66.5m (8 storeys)
02	11282.712, 79666.975	56.0m (6 storeys)	66.5m (8 storeys)
03	11296.626, 79649.609	45.5m (4 storeys)	63.5m (7 storeys)
04	11344.869, 79689.914	45.5m (4 storeys)	66.5m (8 storeys)
05	11338.317, 79701.031	56.0m (6 storeys)	66.5m (8 storeys)
06	11350.539, 79709.838	56.0m (6 storeys)	66.5m (8 storeys)
07	11367.391, 79681.242	45.5m (4 storeys)	53.0m (6 storeys)
08	11354.132, 79674.196	45.5m (4 storeys)	53.0m (6 storeys)
09	11307.882, 79635.559	45.5m (4 storeys)	53.0m (6 storeys)
10	11297.280, 79624.802	45.5m (4 storeys)	53.0m (6 storeys)

CPN.08

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11466.771, 79782.106	56.0m (6 storeys)	66.5m (8 storeys)
02	11478.437, 79791.815	56.0m (6 storeys)	66.5m (8 storeys)
03	11497.081, 79760.869	45.5m (4 storeys)	63.5m (7 storeys)
04	11530.171, 79787.921	45.5m (4 storeys)	63.5m (7 storeys)
05	11509.877, 79813.307	56.0m (6 storeys)	66.5m (8 storeys)
06	11521.827, 79822.381	56.0m (6 storeys)	66.5m (8 storeys)
07	11555.668, 79780.049	45.5m (4 storeys)	53.0m (6 storeys)
08	11541.424, 79773.845	45.5m (4 storeys)	53.0m (6 storeys)
09	11506.381, 79745.277	45.5m (4 storeys)	53.0m (6 storeys)
10	11496.948, 79731.847	45.5m (4 storeys)	53.0m (6 storeys)

Ⓐ no less than 2m



Site location plan NTS 07

make
20 Wharfside Street, The Mailbox
Birmingham, B1 1RD
tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

North

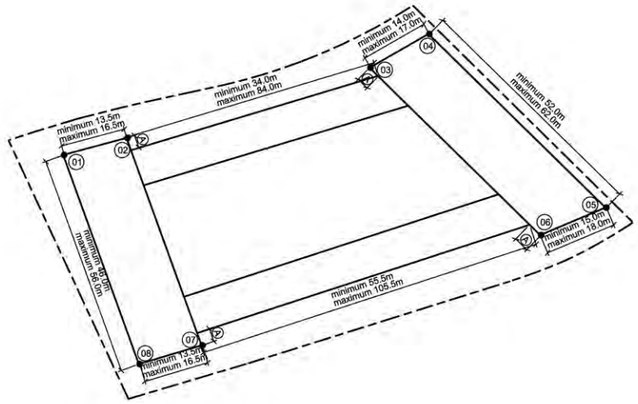
Project
West Southall Masterplan

Drawing Title
Building envelope parameters
Typology 1 - Apartment buildings

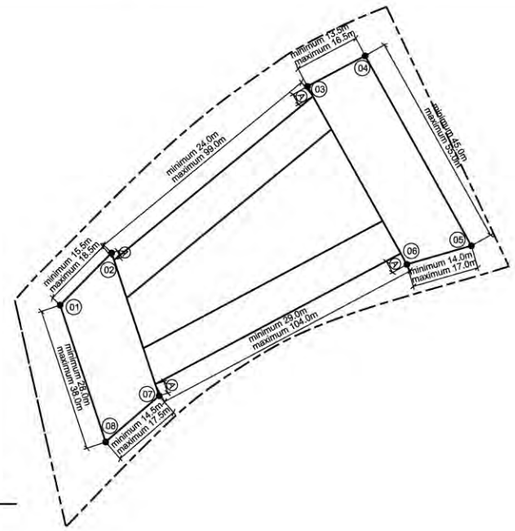
Figure 3.4e

Scale	Paper Size	Date
1:500	A0	29.08.08

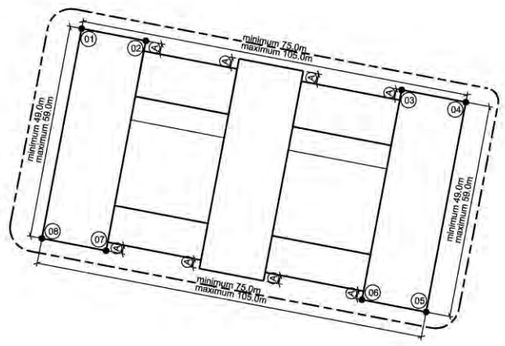
Project No.	Draw No.	Rev No.
0317	P1005	00



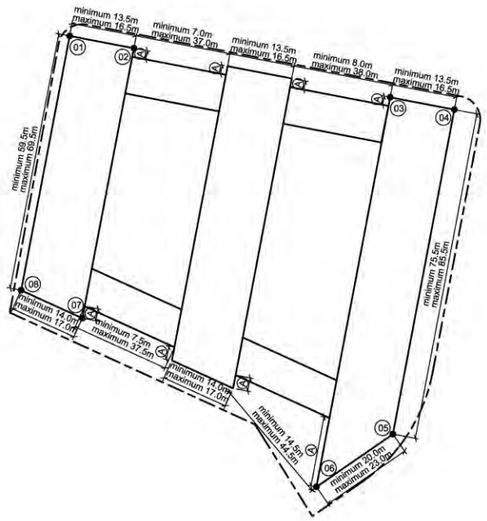
01 CPS.02
1:500



02 CPS.11
1:500



03 CPN.03
1:500



04 CPN.04
1:500

CPS.02

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11406.071, 79672.477	48.5m (5 storeys)	56.0m (7 storeys)
02	11420.612, 79676.375	48.5m (5 storeys)	56.0m (7 storeys)
03	11476.406, 79692.489	48.5m (5 storeys)	56.0m (7 storeys)
04	11489.929, 79700.237	48.5m (5 storeys)	56.0m (7 storeys)
05	11530.557, 79660.392	56.0m (6 storeys)	66.5m (8 storeys)
06	11515.574, 79654.077	56.0m (6 storeys)	66.5m (8 storeys)
07	11437.843, 79628.765	56.0m (6 storeys)	66.5m (8 storeys)
08	11423.457, 79624.436	56.0m (6 storeys)	66.5m (8 storeys)

CPS.11

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11308.637, 79604.820	45.5m (4 storeys)	53.0m (6 storeys)
02	11320.487, 79616.833	45.5m (4 storeys)	53.0m (6 storeys)
03	11365.426, 79655.042	45.5m (4 storeys)	53.0m (6 storeys)
04	11378.680, 79662.072	45.5m (4 storeys)	53.0m (6 storeys)
05	11403.063, 79618.463	56.0m (7 storeys)	66.5m (8 storeys)
06	11388.267, 79614.188	56.0m (7 storeys)	66.5m (8 storeys)
07	11331.395, 79584.016	53.0m (6 storeys)	66.5m (8 storeys)
08	11319.108, 79573.426	53.0m (6 storeys)	66.5m (8 storeys)

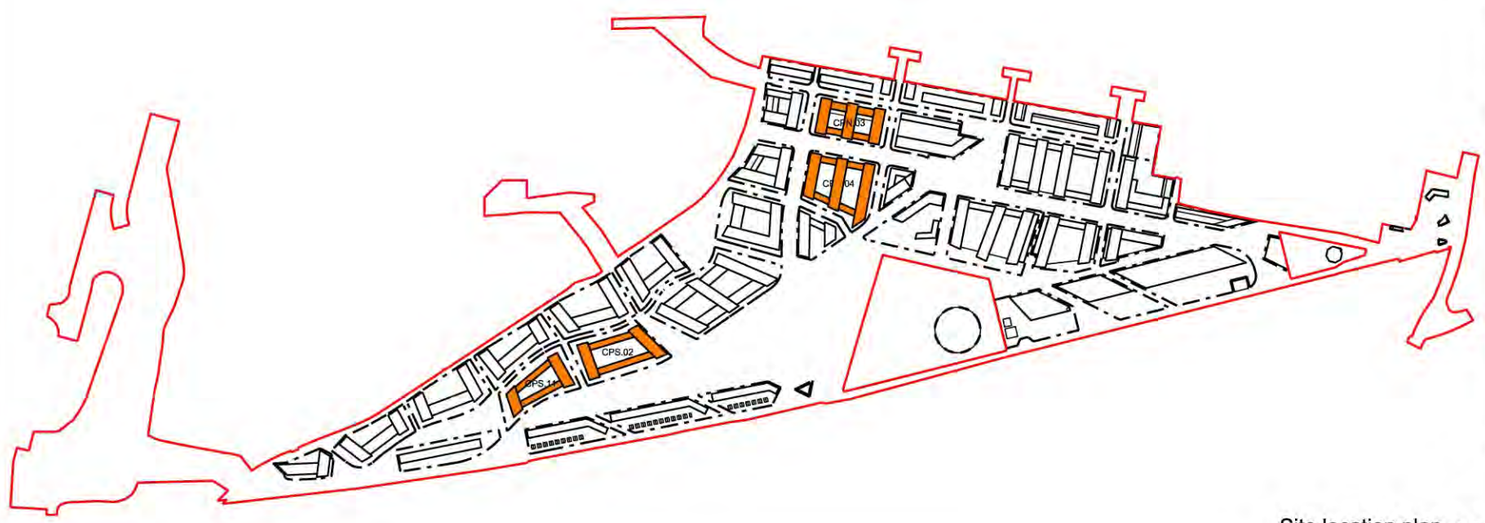
CPN.03

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11742.941, 80013.570	42.5m (3 storeys)	50.0m (6 storeys)
02	11757.673, 80010.748	42.5m (3 storeys)	50.0m (6 storeys)
03	11816.409, 79999.500	42.5m (3 storeys)	50.0m (6 storeys)
04	11831.141, 79996.678	42.5m (3 storeys)	50.0m (6 storeys)
05	11822.020, 79948.510	47.0m (4 storeys)	56.0m (6 storeys)
06	11807.288, 79951.332	47.0m (4 storeys)	56.0m (6 storeys)
07	11748.553, 79962.585	47.0m (4 storeys)	56.0m (6 storeys)
08	11733.821, 79965.407	47.0m (4 storeys)	56.0m (6 storeys)

CPN.04

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11728.472, 79937.739	48.5m (5 storeys)	56.0m (7 storeys)
02	11743.204, 79934.917	48.5m (5 storeys)	56.0m (7 storeys)
03	11802.046, 79923.648	48.5m (5 storeys)	56.0m (7 storeys)
04	11816.778, 79920.827	48.5m (5 storeys)	56.0m (7 storeys)
05	11802.671, 79846.328	56.0m (7 storeys)	68.5m (10 storeys)
06	11785.112, 79834.224	56.0m (7 storeys)	68.5m (10 storeys)
07	11731.377, 79872.940	53.0m (6 storeys)	66.5m (8 storeys)
08	11717.329, 79879.347	53.0m (6 storeys)	66.5m (8 storeys)

Ⓐ no less than 2m



Site location plan NTS 05

General Notes
1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:

- Plot boundary
- AOD Above ordnance datum
- Typology 2 - Apartment buildings
- Composite development area boundary

Site datum 32.00m AOD +/-1m

0 5m 10m 15m 20m 25m 40m
1:500

Rev	Date	Reason For Issue	Chk
00	xxx	For information	

make
20 Wharfside Street, The Mailbox
Birmingham, B1 1RD
tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

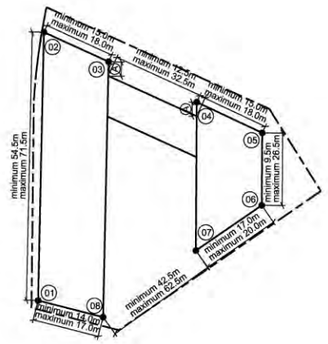
North

Project
West Southall Masterplan

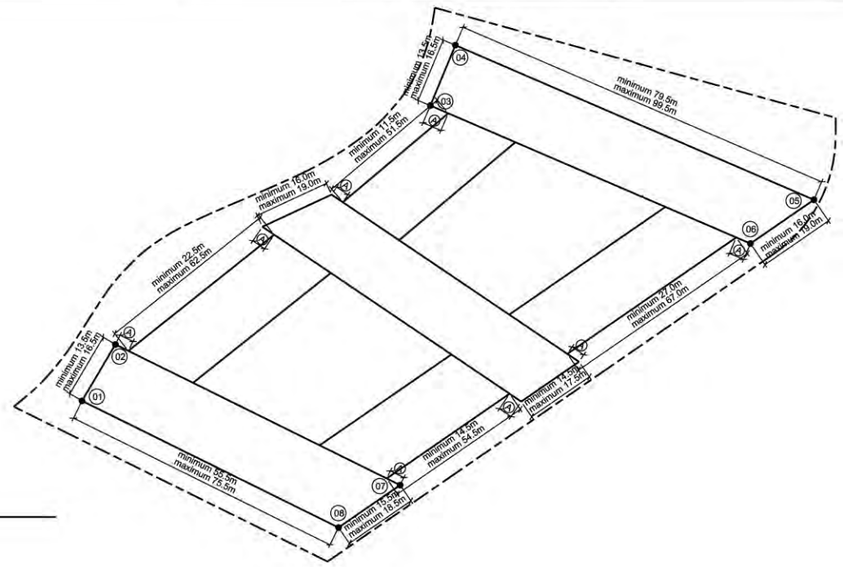
Drawing Title
Building envelope parameters
Typology 2 -
Apartment buildings
Figure 3.4f

Scale	Paper Size	Date
1:500	A0	29.08.08

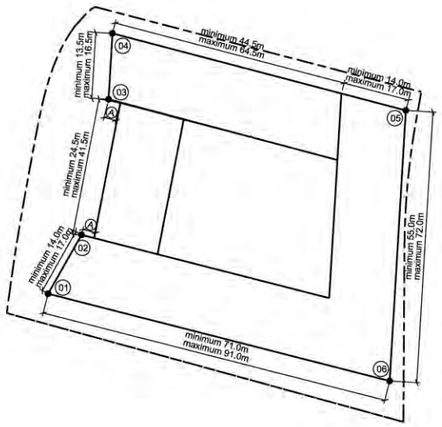
Project No.	Draw No.	Rev No.
0317	P1006	00



06 CPN.05
1:500



07 CPN.07
1:500



08 CPN.09
1:500

CPN.05

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11710.966, 79796.622	56.0m (6 storeys)	66.5m (8 storeys)
02	11712.295, 79858.252	51.5m (6 storeys)	59.0m (8 storeys)
03	11727.153, 79851.475	51.5m (6 storeys)	59.0m (8 storeys)
04	11747.386, 79842.214	56.0m (7 storeys)	66.5m (8 storeys)
05	11762.415, 79835.140	56.0m (7 storeys)	66.5m (8 storeys)
06	11762.317, 79818.509	56.0m (7 storeys)	66.5m (8 storeys)
07	11747.183, 79808.126	56.0m (7 storeys)	66.5m (8 storeys)
08	11725.887, 79792.850	56.0m (6 storeys)	66.5m (8 storeys)

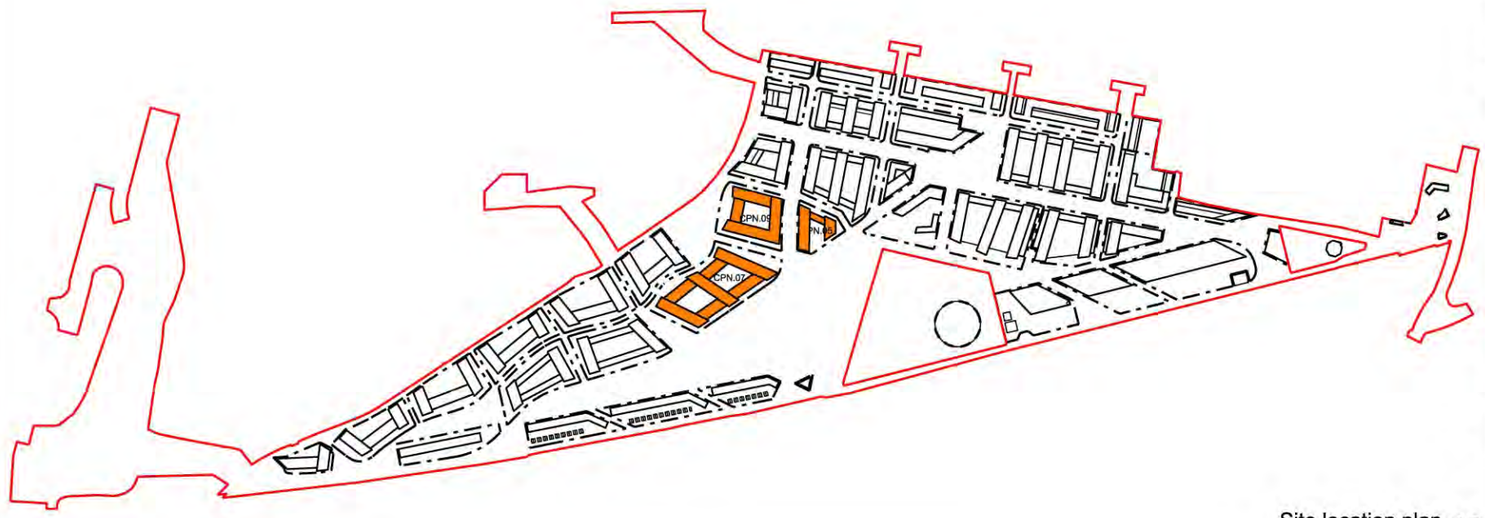
CPN.07

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11514.853, 79717.585	48.5m (5 storeys)	56.0m (7 storeys)
02	11522.513, 79730.531	48.5m (5 storeys)	56.0m (7 storeys)
03	11594.821, 79785.366	48.5m (5 storeys)	56.0m (7 storeys)
04	11600.562, 79799.225	48.5m (5 storeys)	56.0m (7 storeys)
05	11682.872, 79763.744	56.0m (6 storeys)	66.5m (8 storeys)
06	11668.295, 79753.694	56.0m (6 storeys)	66.5m (8 storeys)
07	11587.870, 79698.251	56.0m (6 storeys)	66.5m (8 storeys)
08	11573.731, 79688.504	56.0m (6 storeys)	66.5m (8 storeys)

CPN.09

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11606.377, 79823.387	53.0m (6 storeys)	59.0m (8 storeys)
02	11614.046, 79836.906	53.0m (6 storeys)	59.0m (8 storeys)
03	11620.271, 79867.854	45.5m (4 storeys)	53.0m (6 storeys)
04	11621.130, 79883.153	45.5m (4 storeys)	53.0m (6 storeys)
05	11688.499, 79865.464	51.5m (6 storeys)	59.0m (8 storeys)
06	11684.789, 79803.350	56.0m (6 storeys)	66.5m (8 storeys)

Ⓐ no less than 2m



Site location plan NTS 09

General Notes
1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:

- Plot boundary
- AOD Above ordnance datum
- Typology 2 - Apartment buildings
- Composite development area boundary

Site datum 32.00m AOD +/-1m

0 5m 10m 15m 20m 25m 40m
1:500

Rev	Date	Reason For Issue	Chk
00	xxx	For information	

make
20 Wharfside Street, The Mailbox
Birmingham, B1 1RD

tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

North

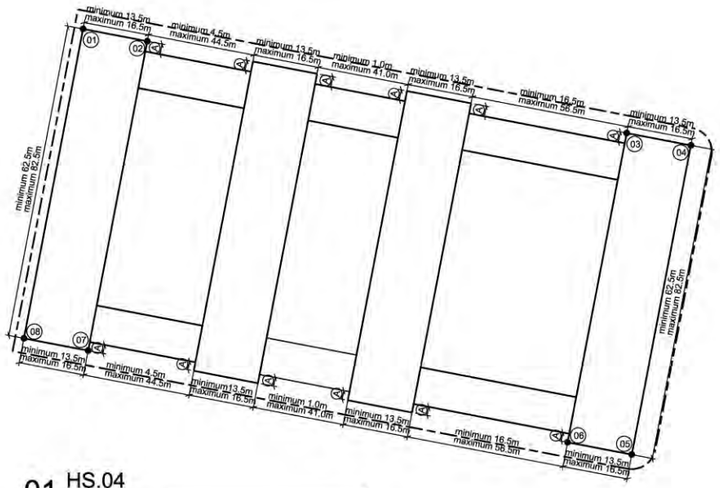
Project
West Southall Masterplan

Drawing Title
Building envelope parameters
Typology 2 -
Residential building

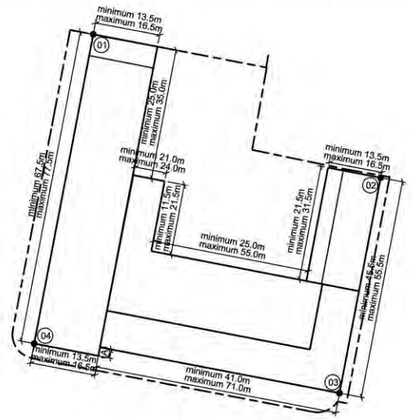
Figure 3.4g

Scale	Paper Size	Date
1:500	A0	29.08.08

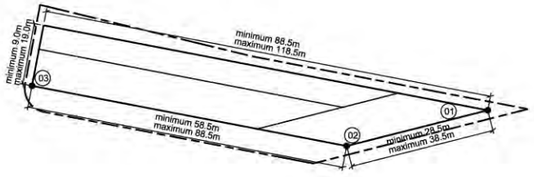
Project No.	Draw No.	Rev No.
0317	P1007	00



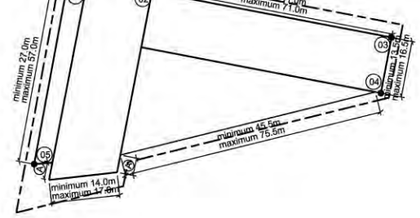
01 HS.04
1:500



02 HS.06
1:500



03 HS.07
1:500



04 HS.11
1:500

HS.04

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12001.498, 79964.024	42.5m (3 storeys)	50.0m (5 storeys)
02	12016.231, 79961.208	42.5m (3 storeys)	50.0m (5 storeys)
13	12126.294, 79940.122	42.5m (3 storeys)	50.0m (5 storeys)
14	12141.027, 79937.306	42.5m (3 storeys)	50.0m (5 storeys)
15	12127.458, 79866.330	47.0m (4 storeys)	56.0m (6 storeys)
16	12112.725, 79869.147	47.0m (4 storeys)	56.0m (6 storeys)
27	12002.654, 79890.189	47.0m (4 storeys)	56.0m (6 storeys)
28	11987.921, 79893.006	47.0m (4 storeys)	56.0m (6 storeys)

HS.06

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12161.653, 79933.362	42.5m (3 storeys)	50.0m (5 storeys)
02	12227.629, 79900.458	41.0m (3 storeys)	42.5m (3 storeys)
03	12218.185, 79851.022	42.5m (3 storeys)	50.0m (5 storeys)
04	12148.084, 79862.387	47.0m (4 storeys)	56.0m (6 storeys)

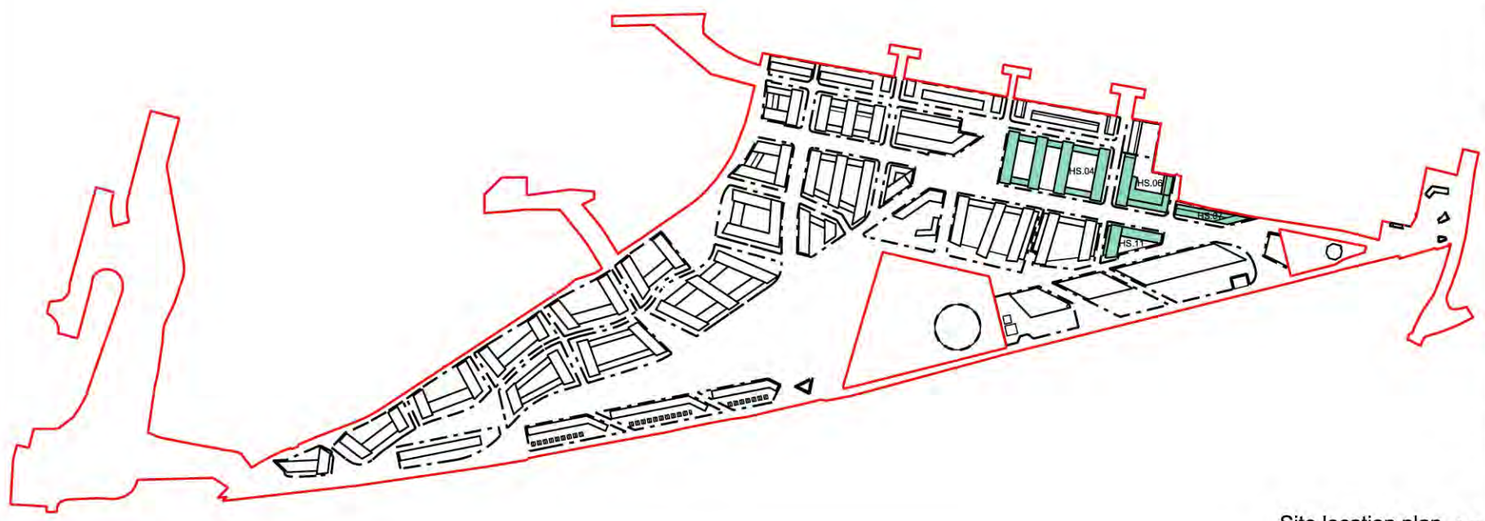
HS.07

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12334.591, 79843.163	47.0m (4 storeys)	56.0m (6 storeys)
02	12302.220, 79834.957	42.5m (3 storeys)	56.0m (6 storeys)
03	12229.972, 79848.769	42.5m (3 storeys)	50.0m (5 storeys)

HS.11

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12138.115, 79833.540	45.5m (5 storeys)	56.0m (7 storeys)
02	12157.525, 79831.865	68.5m (10 storeys)	78.0m (12 storeys)
03	12212.513, 79821.353	47.0m (4 storeys)	53.0m (6 storeys)
04	12210.072, 79808.584	45.5m (5 storeys)	56.0m (6 storeys)
05	12130.470, 79792.273	45.5m (5 storeys)	56.0m (6 storeys)

Ⓐ no less than 2m



Site location plan
NTS
05

General Notes
1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:

- Plot boundary
- AOD Above ordnance datum
- Typology 3 - Mixed use buildings
- Composite development area boundary

Site datum 32.00m AOD +/-1m

0 5m 10m 15m 20m 25m 40m
1:500

Rev	Date	Reason For Issue	Chk
00	xxx	For information	

make
20 Wharfside Street, The Mailbox
Birmingham, B1 1RD

tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

North

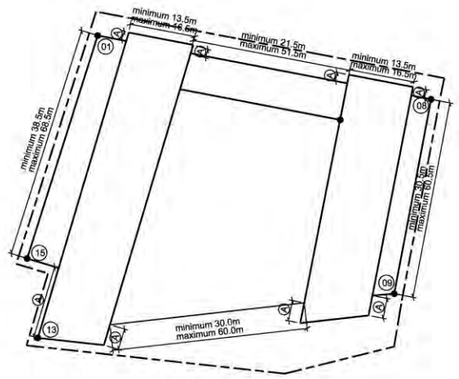
Project
West Southall Masterplan

Drawing Title
Building envelope parameters
Typology 3 -
Mixed-use buildings

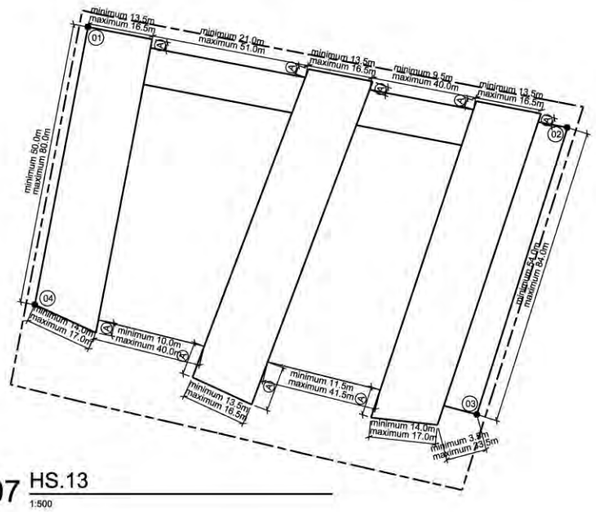
Figure 3.4h

Scale	Paper Size	Date
1:500	A0	29.08.08

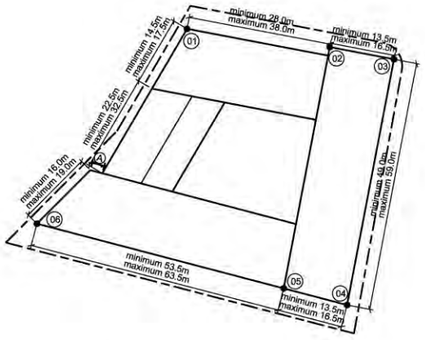
Project No.	Draw No.	Rev No.
0317	P1008	00



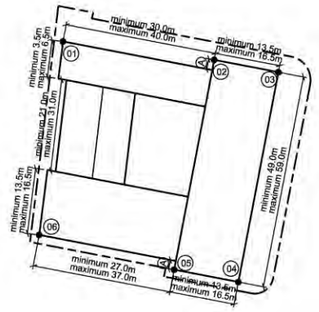
06 HS.12
1:500



07 HS.13
1:500



08 CPN.10
1:500



09 CPN.11
1:500

HS.12

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12049.775, 79850.428	48.5m (5 storeys)	56.0m (7 storeys)
02	12126.326, 79835.793	48.5m (5 storeys)	56.0m (7 storeys)
03	12117.855, 79791.176	56.0m (7 storeys)	68.5m (10 storeys)
04	12036.047, 79781.030	56.0m (7 storeys)	68.5m (10 storeys)
05	12033.577, 79799.250	56.0m (7 storeys)	68.5m (10 storeys)

HS.13

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11932.268, 79874.934	48.5m (5 storeys)	56.0m (7 storeys)
02	12042.358, 79851.846	48.5m (5 storeys)	56.0m (7 storeys)
03	12021.519, 79786.006	56.0m (7 storeys)	68.5m (10 storeys)
04	11920.062, 79811.192	56.0m (7 storeys)	68.5m (10 storeys)

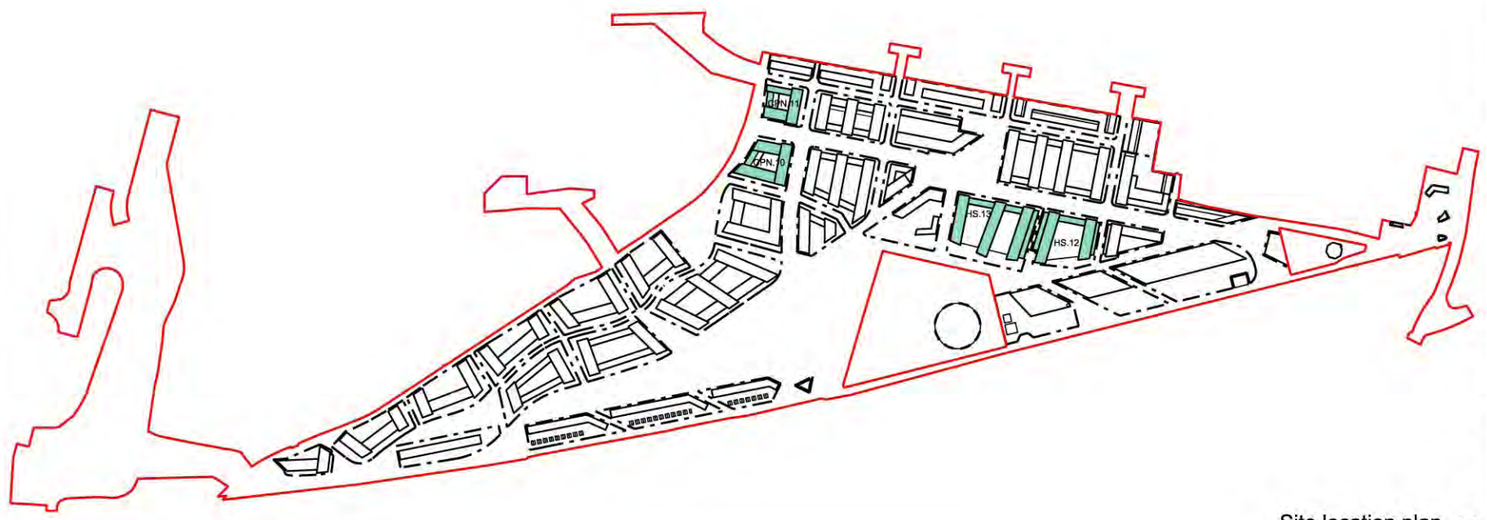
CPN.10

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11655.542, 79949.584	42.5m (3 storeys)	50.0m (5 storeys)
02	11688.302, 79945.395	48.5m (5 storeys)	56.0m (7 storeys)
03	11703.037, 79942.588	48.5m (5 storeys)	56.0m (7 storeys)
04	11692.273, 79886.183	53.0m (6 storeys)	66.5m (8 storeys)
05	11677.730, 79889.996	53.0m (6 storeys)	66.5m (8 storeys)
06	11621.074, 79904.851	42.5m (3 storeys)	50.0m (5 storeys)

CPN.11

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11668.095, 80025.480	42.5m (3 storeys)	50.0m (5 storeys)
02	11702.798, 80021.259	42.5m (3 storeys)	50.0m (5 storeys)
03	11717.532, 80018.442	42.5m (3 storeys)	50.0m (5 storeys)
04	11708.341, 79970.281	47.0m (4 storeys)	63.5m (7 storeys)
05	11693.608, 79973.097	53.0m (6 storeys)	66.5m (8 storeys)
06	11662.623, 79981.073	53.0m (6 storeys)	66.5m (8 storeys)

Ⓐ no less than 2m



Site location plan
NTS
10

General Notes
1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:

- Plot boundary
- AOD Above ordnance datum
- Typology 3 - Mixed use buildings
- Composite development area boundary

Site datum 32.00m AOD +/-1m

0 5m 10m 15m 20m 25m 40m
1:500

Rev	Date	Reason For Issue	Chk
00	xxx	For information	

make
20 Wharfside Street, The Mailbox
Birmingham, B1 1RD

tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

North

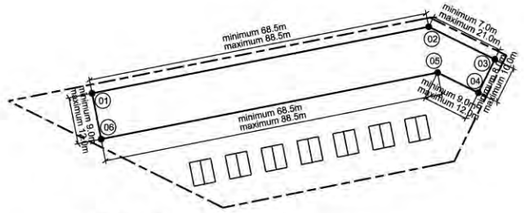
Project
West Southall Masterplan

Drawing Title
Building envelope parameters
Typology 3 -
Mixed-use buildings

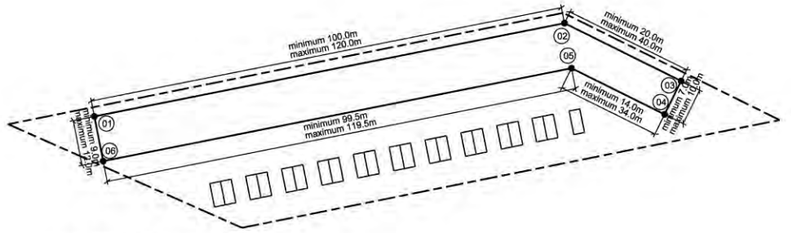
Figure 3.4i

Scale	Paper Size	Date
1:500	A0	29.08.08

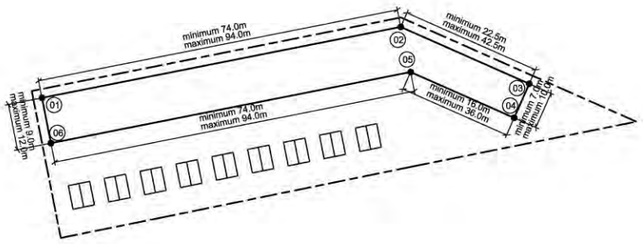
Project No.	Draw No.	Rev No.
0317	P1009	00



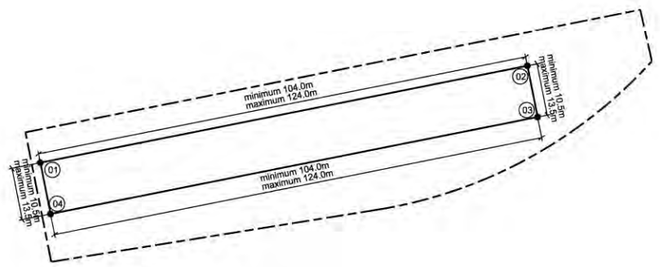
01 CPS.03
1:500



02 CPS.04
1:500



03 CPS.05
1:500



04 CPS.06
1:500

CPS.03

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11591.647, 79605.336	41.0m (3 storeys)	45.5m (4 storeys)
02	11668.926, 79620.614	41.0m (3 storeys)	45.5m (4 storeys)
03	11684.102, 79613.126	41.0m (3 storeys)	45.5m (4 storeys)
04	11680.319, 79605.458	41.0m (3 storeys)	45.5m (4 storeys)
05	11670.940, 79610.086	41.0m (3 storeys)	45.5m (4 storeys)
06	11593.726, 79594.820	41.0m (3 storeys)	45.5m (4 storeys)

CPS.04

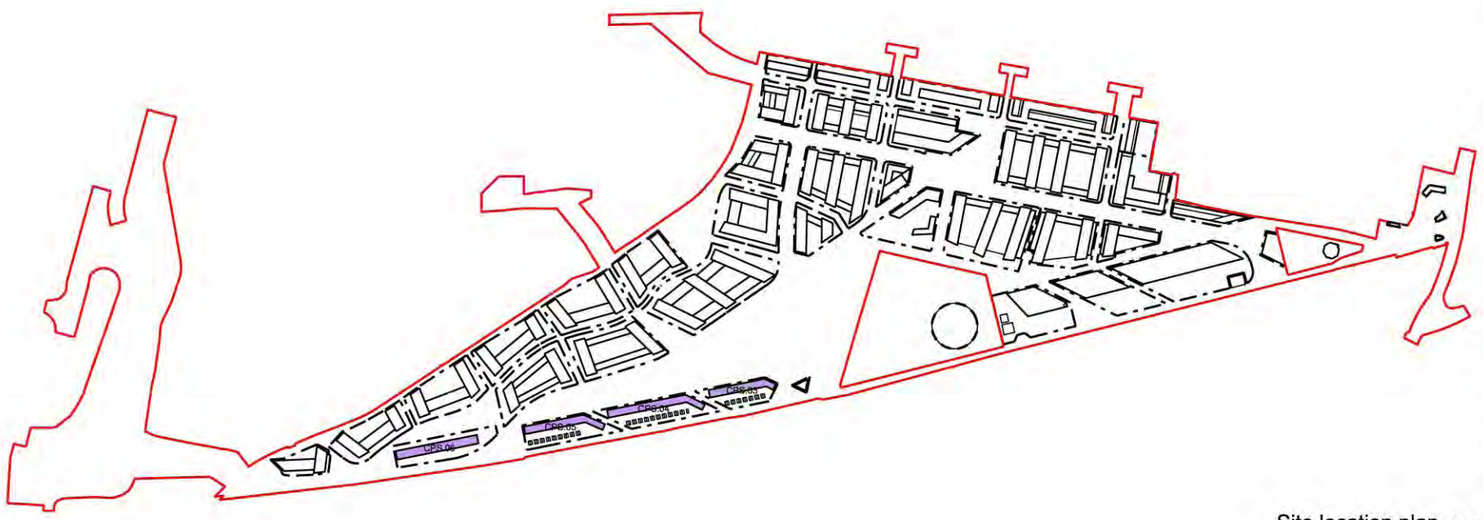
	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11451.711, 79577.378	41.0m (3 storeys)	45.5m (4 storeys)
02	11559.642, 79598.782	41.0m (3 storeys)	45.5m (4 storeys)
03	11586.422, 79585.514	41.0m (3 storeys)	45.5m (4 storeys)
04	11582.626, 79577.852	41.0m (3 storeys)	45.5m (4 storeys)
05	11561.257, 79588.440	41.0m (3 storeys)	45.5m (4 storeys)
06	11453.745, 79567.118	41.0m (3 storeys)	45.5m (4 storeys)

CPS.05

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11337.067, 79554.857	41.0m (3 storeys)	45.5m (4 storeys)
02	11419.423, 79571.139	41.0m (3 storeys)	45.5m (4 storeys)
03	11448.925, 79558.087	41.0m (3 storeys)	45.5m (4 storeys)
04	11445.466, 79550.268	41.0m (3 storeys)	45.5m (4 storeys)
05	11421.697, 79560.783	41.0m (3 storeys)	45.5m (4 storeys)
06	11339.123, 79544.485	41.0m (3 storeys)	45.5m (4 storeys)

CPS.06

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11159.627, 79521.159	41.0m (3 storeys)	45.5m (4 storeys)
02	11272.310, 79543.410	41.0m (3 storeys)	45.5m (4 storeys)
03	11274.652, 79531.640	41.0m (3 storeys)	45.5m (4 storeys)
04	11162.845, 79509.390	41.0m (3 storeys)	45.5m (4 storeys)



Site location plan
NTS
05

General Notes
1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:

- Plot boundary
- AOD Above ordnance datum
- Typology 4 - Townhouses
- Composite development area boundary

Site datum 32.00m AOD +/-1m

0 5m 10m 15m 20m 25m 40m
1:500

Rev	Date	Reason For Issue	Chk
00	xxx	For information	

make
20 Wharfside Street, The Mailbox
Birmingham. B1 1RD
tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

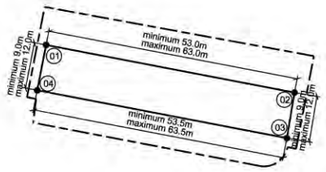
North

Project
West Southall Masterplan

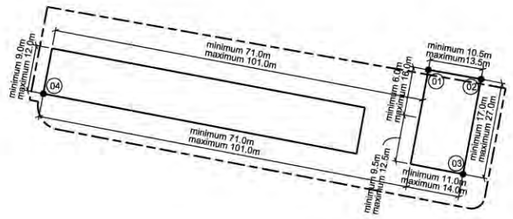
Drawing Title
Building envelope parameters
Typology 4 - Townhouses
Figure 3.4j

Scale	Paper Size	Date
1:500	A0	29.08.08

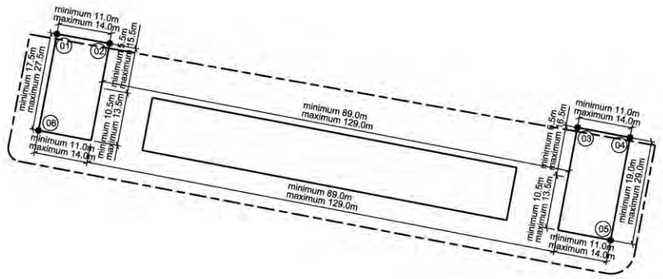
Project No.	Draw No.	Rev No.
0317	P1010	00



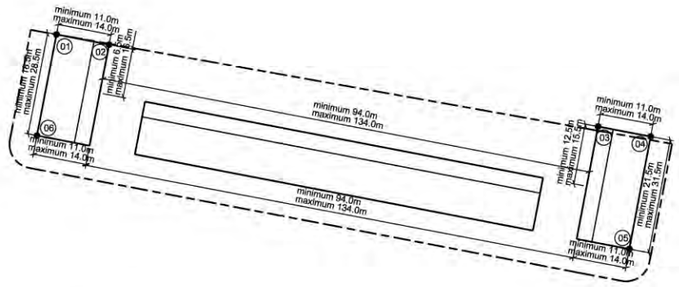
06 CPN.01
1:500



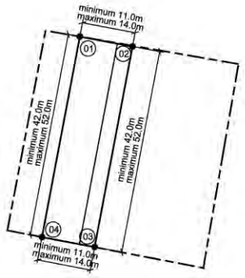
07 CPN.02
1:500



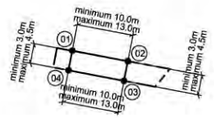
08 HS.01
1:500



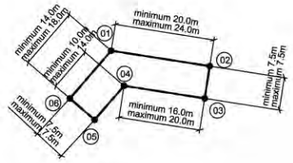
09 HS.03
1:500



10 HS.05
1:500



11 HS.17
1:500



12 HS.20
1:500

CPN.01

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11673.226, 80059.105	41.0m (3 storeys)	45.5m (4 storeys)
02	11730.249, 80048.181	41.0m (3 storeys)	45.5m (4 storeys)
03	11728.494, 80037.724	41.0m (3 storeys)	45.5m (4 storeys)
04	11671.188, 80048.703	41.0m (3 storeys)	45.5m (4 storeys)

CPN.02

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11828.540, 80040.958	41.0m (3 storeys)	45.5m (4 storeys)
02	11840.660, 80038.841	41.0m (3 storeys)	45.5m (4 storeys)
03	11836.494, 80017.045	41.0m (3 storeys)	45.5m (4 storeys)
04	11740.140, 80035.504	41.0m (3 storeys)	45.5m (4 storeys)

HS.01

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11861.349, 80035.223	41.0m (3 storeys)	45.5m (5 storeys)
02	11873.426, 80033.050	41.0m (3 storeys)	45.5m (5 storeys)
03	11980.824, 80013.762	41.0m (3 storeys)	45.5m (5 storeys)
04	11992.910, 80011.459	41.0m (3 storeys)	45.5m (5 storeys)
05	11988.442, 79987.904	41.0m (3 storeys)	45.5m (5 storeys)
06	11857.114, 80013.072	41.0m (3 storeys)	45.5m (5 storeys)

HS.03

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12013.468, 80007.176	41.0m (3 storeys)	45.5m (4 storeys)
02	12025.544, 80004.837	41.0m (3 storeys)	45.5m (4 storeys)
03	12137.781, 79986.036	41.0m (3 storeys)	45.5m (4 storeys)
04	12149.866, 79983.744	41.0m (3 storeys)	45.5m (4 storeys)
05	12144.969, 79957.924	41.0m (3 storeys)	45.5m (4 storeys)
06	12008.976, 79983.977	41.0m (3 storeys)	45.5m (4 storeys)

HS.05

Ⓐ no less than 2m

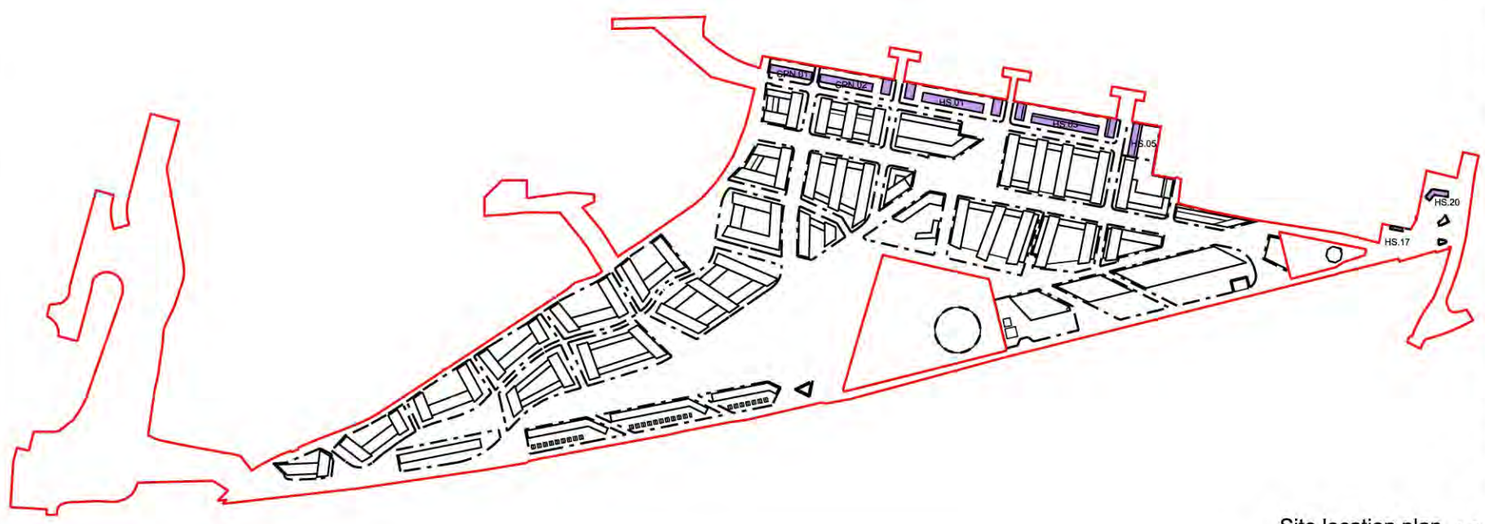
	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12172.999, 79978.865	41.0m (3 storeys)	45.5m (4 storeys)
02	12185.086, 79976.581	41.0m (3 storeys)	45.5m (4 storeys)
03	12176.386, 79930.545	41.0m (3 storeys)	45.5m (4 storeys)
04	12164.300, 79932.829	41.0m (3 storeys)	45.5m (4 storeys)

HS.17

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12530.500, 79836.500	41.0m (3 storeys)	44.0m (4 storeys)
02	12543.285, 79834.086	41.0m (3 storeys)	44.0m (4 storeys)
03	12539.897, 79818.073	41.0m (3 storeys)	44.0m (4 storeys)
04	12529.620, 79818.562	41.0m (3 storeys)	44.0m (4 storeys)

HS.20

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12584.072, 79887.523	41.0m (3 storeys)	44.0m (4 storeys)
02	12606.692, 79883.955	41.0m (3 storeys)	44.0m (4 storeys)
03	12605.534, 79876.576	41.0m (3 storeys)	44.0m (4 storeys)
04	12587.015, 79879.440	41.0m (3 storeys)	44.0m (4 storeys)
05	12580.247, 79871.656	41.0m (3 storeys)	44.0m (4 storeys)
06	12574.578, 79876.565	41.0m (3 storeys)	44.0m (4 storeys)



Site location plan
NTS
13

General Notes
1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:

- Plot boundary
- AOD Above ordnance datum
- Typology 4 - Townhouses
- Composite development area boundary

Site datum 32.00m AOD +/-1m

0 5m 10m 15m 20m 25m 40m
1:500

Rev	Date	Reason For Issue	Chk
00	xxx	For information	

make
20 Wharfside Street, The Mailbox
Birmingham, B1 1RD
tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

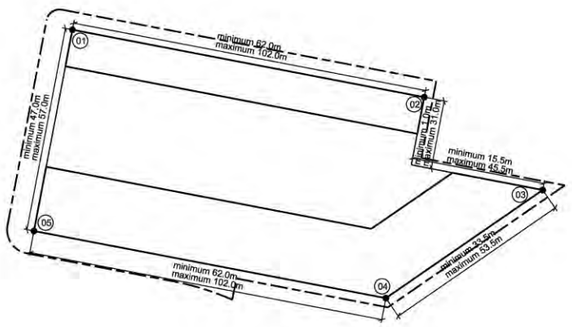
North

Project
West Southall Masterplan

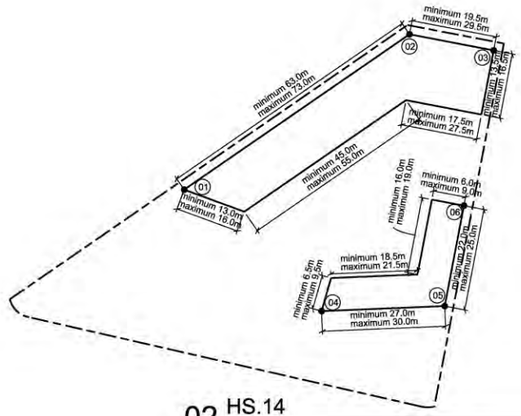
Drawing Title
Building envelope parameters
Typology 4 - Townhouses
Figure 3.4k

Scale	Paper Size	Date
1:500	A0	29.08.08

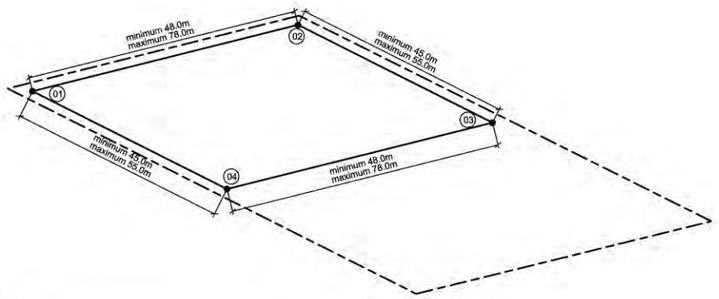
Project No.	Draw No.	Rev No.
0317	P1011	00



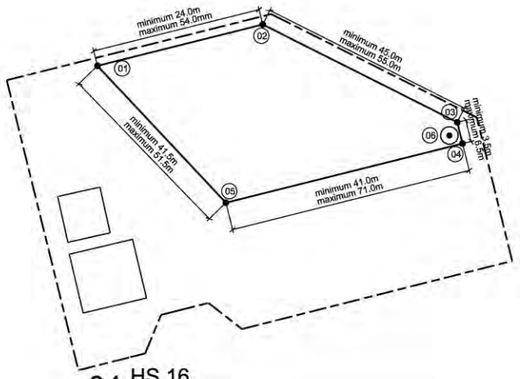
01 HS.02
1:500



02 HS.14
1:500



03 HS.10
1:500



04 HS.16
1:500

HS.02

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11853.292, 79992.434	42.5m (3 storeys)	47.0m (4 storeys)
02	11934.069, 79976.960	42.5m (3 storeys)	47.0m (4 storeys)
03	11961.260, 79955.654	63.5m (9 storeys)	71.5m (11 storeys)
04	11925.254, 79930.832	59.0m (8 storeys)	68.5m (10 storeys)
05	11844.461, 79946.239	45.5m (4 storeys)	53.0m (6 storeys)

HS.10

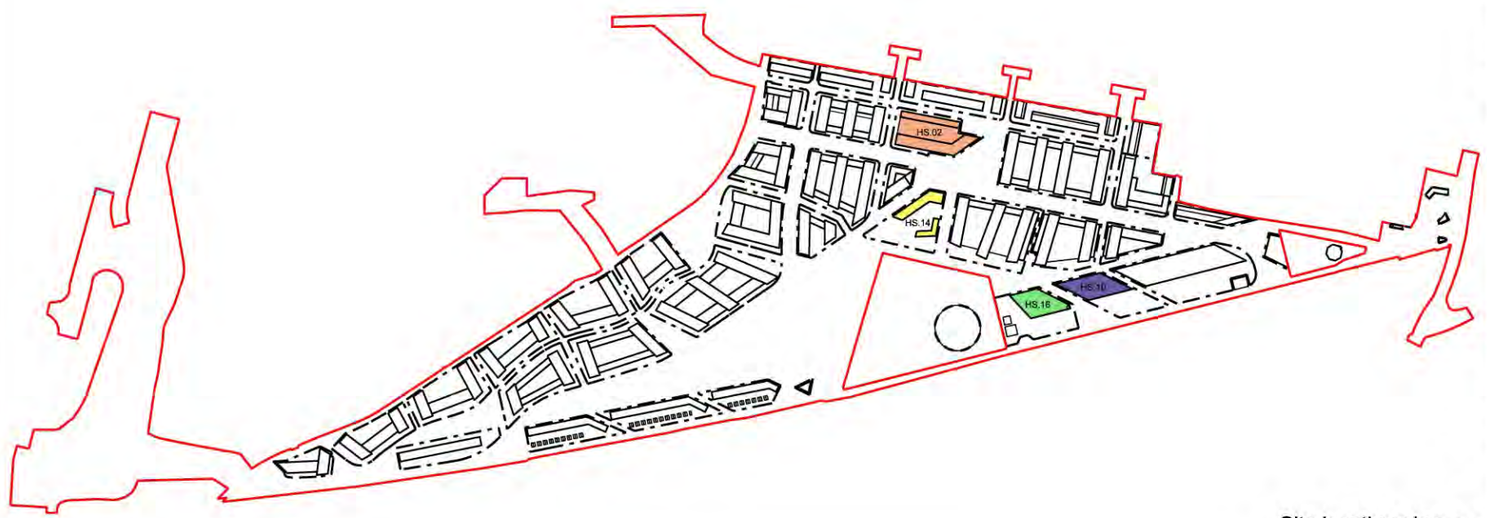
	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12034.083, 79754.067	45.5m (4 storeys)	56.0m (6 storeys)
02	12126.889, 79769.310	45.5m (4 storeys)	56.0m (6 storeys)
03	12171.521, 79746.864	45.5m (4 storeys)	56.0m (6 storeys)
04	12010.567, 79731.626	45.5m (4 storeys)	56.0m (6 storeys)

HS.14

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11840.597, 79846.967	42.5m (3 storeys)	50.0m (5 storeys)
02	11892.328, 79882.628	48.5m (5 storeys)	56.0m (6 storeys)
03	11911.652, 79878.932	48.5m (5 storeys)	56.0m (6 storeys)
04	11872.138, 79819.084	41.0m (3 storeys)	42.5m (3 storeys)
05	11900.413, 79820.241	41.0m (3 storeys)	42.5m (3 storeys)
06	11904.826, 79843.283	41.0m (3 storeys)	42.5m (3 storeys)

HS.16

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12001.940, 79738.074	45.5m (4 storeys)	56.0m (6 storeys)
02	12039.892, 79747.561	45.5m (4 storeys)	56.0m (6 storeys)
03	12084.542, 79725.120	45.5m (4 storeys)	56.0m (6 storeys)
04	12085.747, 79720.228	45.5m (4 storeys)	56.0m (6 storeys)
05	12031.424, 79706.648	45.5m (4 storeys)	56.0m (6 storeys)
06	12082.727, 79722.080		88.0m



Site location plan NTS 05

General Notes
1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:

- Plot boundary
- AOD Above ordnance datum
- Typology 5.1 - Hotel, banquet hall and residential
- Typology 5.2 - School and health centre
- Typology 5.5 - Multistorey carpark
- Typology 5.6 - Energy centre
- Chimney maximum height 74.0m
- Composite development area boundary

Site datum 32.00m AOD +/-1m

0 5m 10m 15m 20m 25m 40m
1:500

Rev	Date	Reason For Issue	Chk
00	xxx	For information	

make
20 Wharfside Street, The Mailbox
Birmingham, B1 1RD
tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

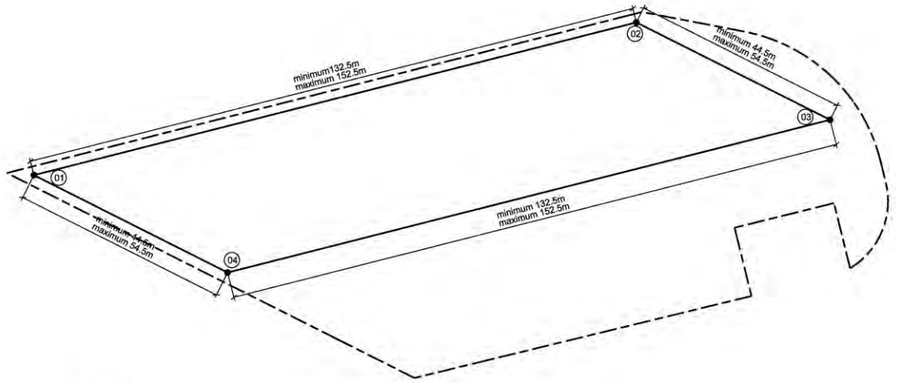
North

Project
West Southall Masterplan

Drawing Title
Building envelope parameters
Typology 5 -
Other buildings
Figure 3.4l

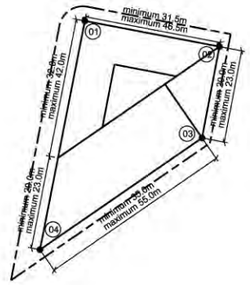
Scale	Paper Size	Date
1:500	A0	29.08.08

Project No.	Draw No.	Rev No.
0317	P1012	00

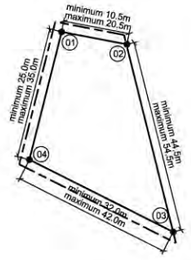


06 HS.09
1:500

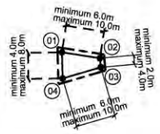
07 CPN.06
1:500



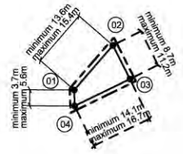
08 HS.15
1:500



09 HS.08
1:500



10 HS.18
1:500



11 HS.19
1:500

HS.09

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12145.364, 79773.450	45.5m (4 storeys)	56.0m (6 storeys)
02	12283.669, 79808.508	45.5m (4 storeys)	56.0m (6 storeys)
03	12328.131, 79786.148	45.5m (4 storeys)	56.0m (6 storeys)
04	12189.827, 79751.090	45.5m (4 storeys)	56.0m (6 storeys)

CPN.06

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11710.310, 79611.509	41.0m (3 storeys)	42.5m (3 storeys)
02	11728.215, 79620.354	41.0m (3 storeys)	42.5m (3 storeys)
03	11725.085, 79604.223	41.0m (3 storeys)	42.5m (3 storeys)

HS.15

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	11838.782, 79916.630	41.0m (3 storeys)	47.0m (4 storeys)
02	11869.663, 79910.742	71.5m (13 storeys)	74.0m (13 storeys)
03	11865.672, 79889.772	71.5m (13 storeys)	74.0m (13 storeys)
04	11828.470, 79864.126	53.0m (6 storeys)	59.0m (8 storeys)

HS.08

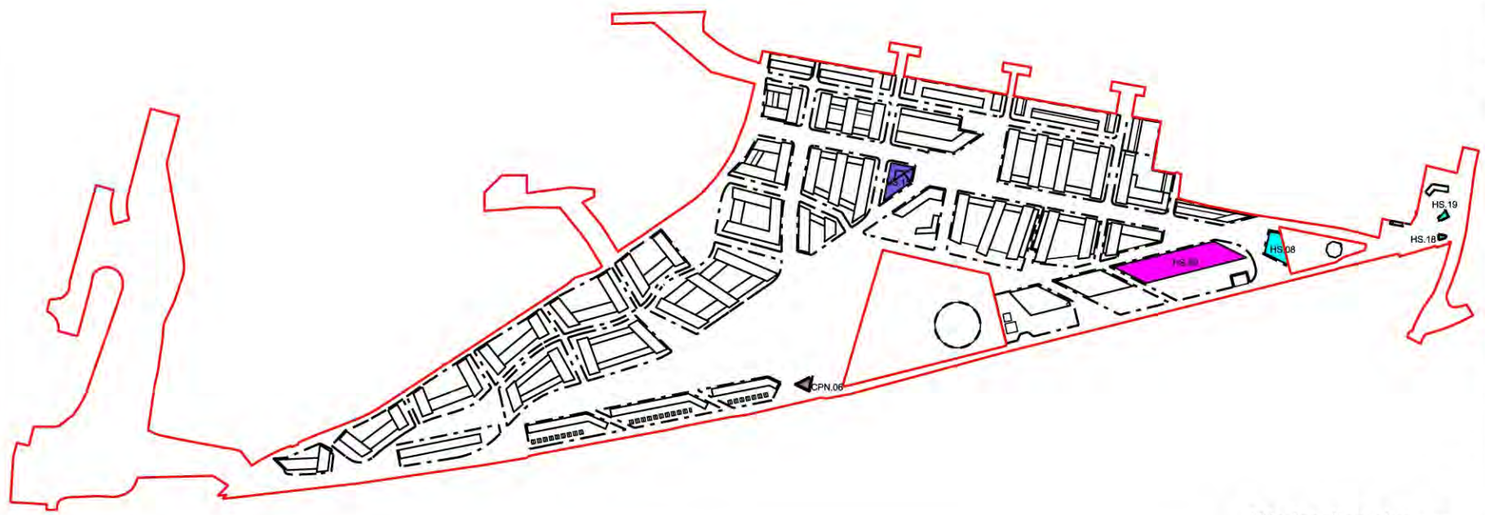
	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12360.771, 79821.868	34.0m (1 storeys)	36.0m (1 storeys)
02	12375.760, 79819.003	34.0m (1 storeys)	36.0m (1 storeys)
03	12386.392, 79775.930	37.0m (1 storeys)	39.0m (1 storeys)
04	12353.358, 79792.543	39.0m (1 storeys)	41.0m (1 storeys)

HS.18

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12593.641, 79817.470	34.0m (1 storeys)	36.0m (1 storeys)
02	12602.371, 79816.127	34.0m (1 storeys)	36.0m (1 storeys)
03	12602.557, 79814.030	34.0m (1 storeys)	36.0m (1 storeys)
04	12593.804, 79811.475	34.0m (1 storeys)	36.0m (1 storeys)

HS.19

	Easting, Northing	minimum height AOD (+/-1m)	maximum height AOD (+/- 1m)
01	12593.019, 79840.322	34.0m (1 storeys)	36.0m (1 storeys)
02	12601.896, 79850.561	34.0m (1 storeys)	36.0m (1 storeys)
03	12605.810, 79841.818	34.0m (1 storeys)	36.0m (1 storeys)
04	12593.119, 79836.642	34.0m (1 storeys)	36.0m (1 storeys)



Site location plan
NTS
12

General Notes
1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:
- Plot boundary
- AOD Above ordnance datum
- Typology 5.4 - Cinema
- Typology 5.8 - Sports hall building
- Typology 5.3 - Tall residential building
- Typology 5.7 - Retail unit
- Composite development area boundary

Site datum 32.00m AOD +/-1m

0 5m 10m 15m 20m 25m 40m
1:500

Rev	Date	Reason For Issue	Chk
00	xxx	For information	

make
20 Wharfside Street, The Mailbox
Birmingham, B1 1RD
tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

North

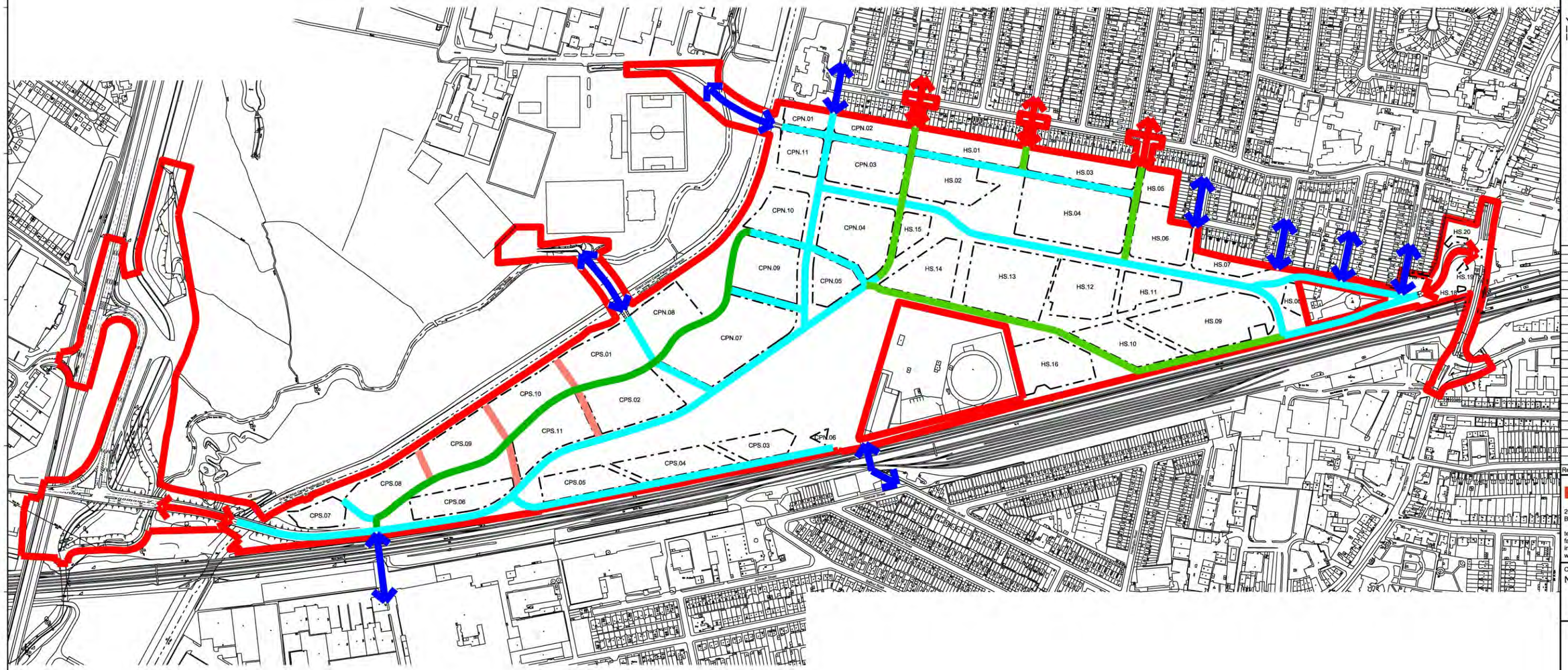
Project
West Southall Masterplan

Drawing Title
Building envelope parameters
Typology 5 -
Other buildings

Figure 3.4m

Scale	Paper Size	Date
1:500	A0	29.08.08

Project No.	Draw No.	Rev No.
0317	P1013	00



General Notes

1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:

- Composite development area boundary
- Plot boundary
- Road with +/- 5m limit of deviation
- Road with +/-10m limit of deviation
- Road with +/- 20m limit of deviation
- Vehicular, pedestrian and cycle access/ egress
- Pedestrian and cycle access/egress

Yeading Football Club ground layout is shown in proposed location

0 20m 40m 60m 80m 100m 150m

1:2000

Rev	Date	Reason For Issue	Chk

make
20 Wharfside Street, The Mailbox
Birmingham, B1 1RD
tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

North

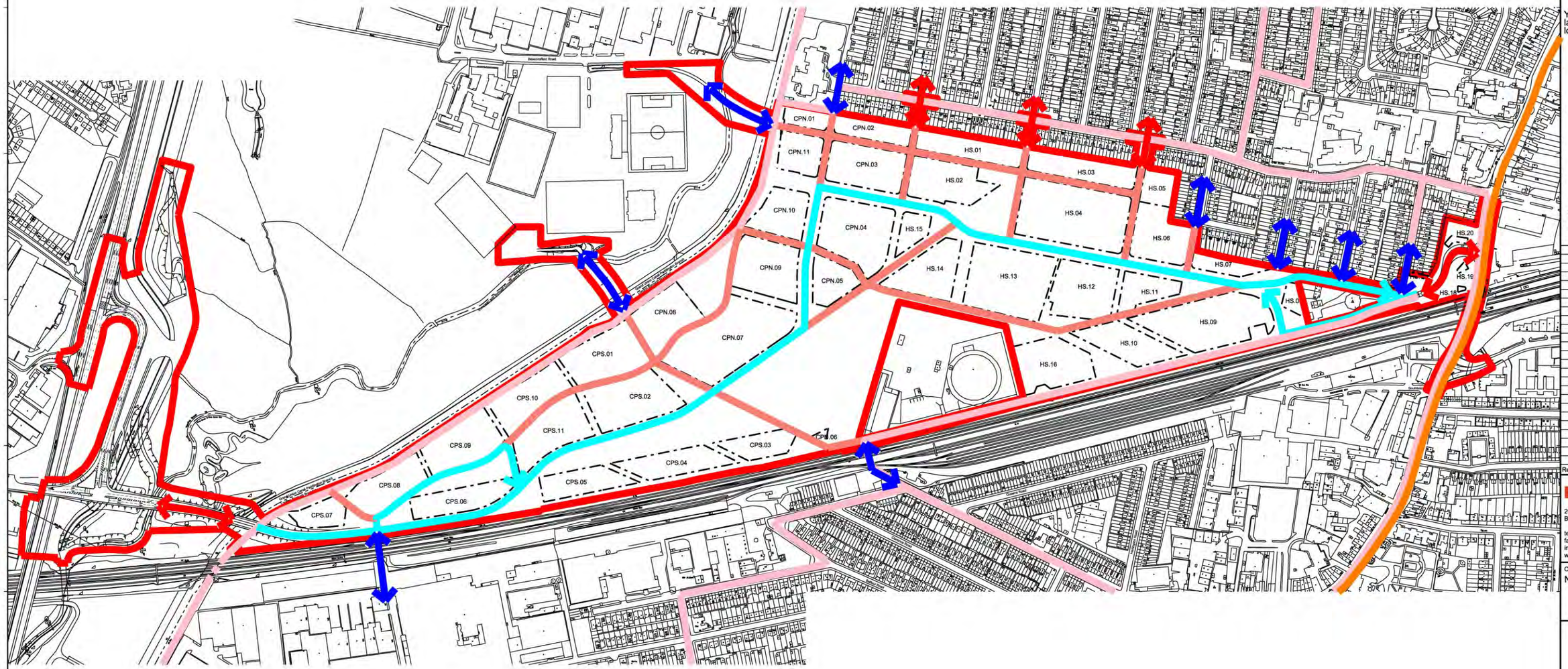
Project
West Southall Masterplan

Drawing Title
Road Layout
Deviation in plan

Figure 3.4n

Scale	Paper Size	Date
1:2000	A0	29.08.08

Project No.	Draw No.	Rev No.
0317	P1014	00



General Notes

1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:

- Composite development area boundary
- Plot boundary
- Bus and cycle route
- Existing bus routes
- Existing signed cycle routes
- Designated cycle route
- Vehicular, pedestrian and cycle access/ egress
- Pedestrian and cycle access/ egress

Yeading Football Club ground layout is shown in proposed location

0 20m 40m 60m 80m 100m 150m

1:2000

Rev	Date	Reason For Issue	Chk

make
20 Wharfside Street, The Mailbox
Birmingham, B1 1RD
tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

North

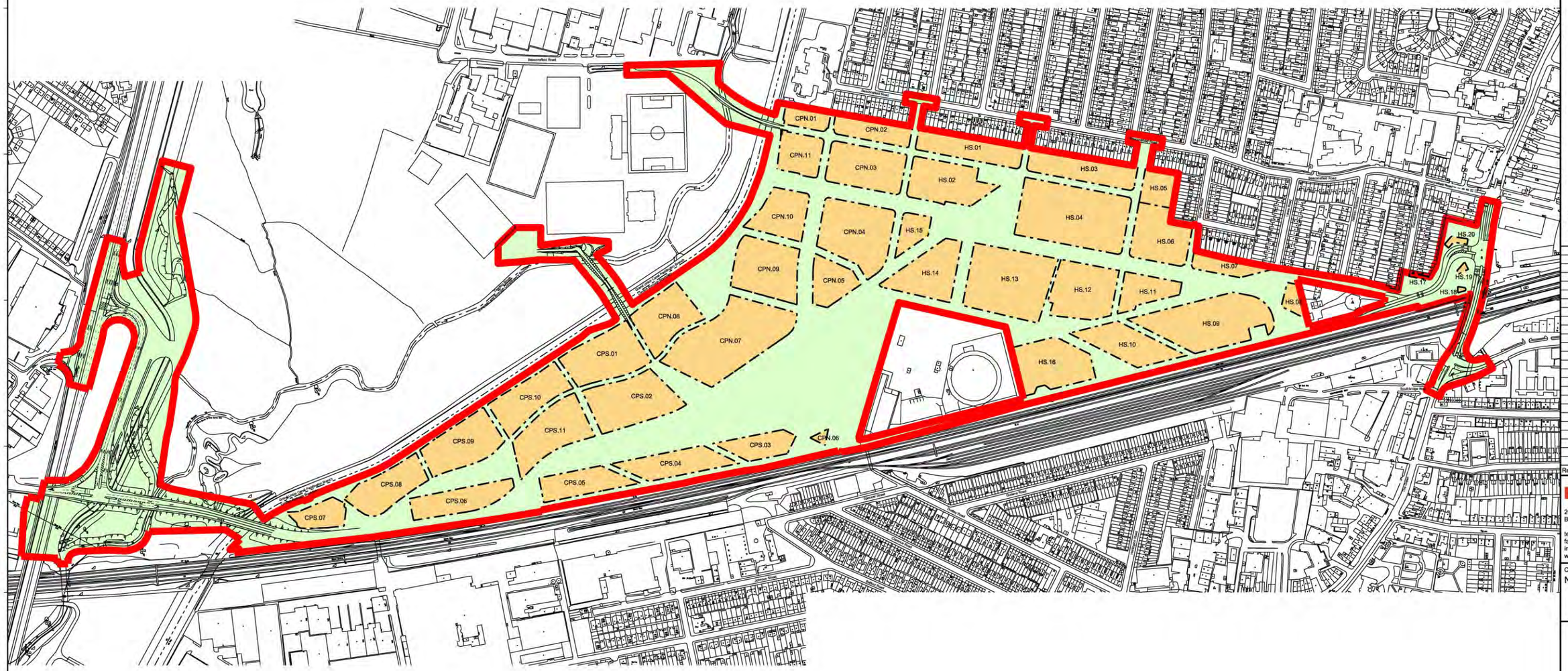
Project
West Southall Masterplan

Drawing Title
Bus and cycle networks

Figure 3.4o

Scale	Paper Size	Date
1:2000	A0	29.08.08

Project No.	Draw No.	Rev No.
0317	P1015	00



General Notes

1. Dimensions are in millimetres unless stated otherwise.
2. Levels are in metres AOD unless stated otherwise.
3. Dimensions govern. Do not scale off drawing.
4. All dimensions to be verified on site before proceeding.
5. All discrepancies to be notified in writing to make architects.

Key:

- Composite development area boundary
- Private realm
- Public realm including highway
- Plot boundary

Yeading Football Club ground layout is shown in proposed location

0 20m 40m 60m 80m 100m 150m

1:2000

Rev	Date	Reason For Issue	Chk

make
20 Wharfside Street, The Mailbox
Birmingham, B1 1RD
tel +44 (0) 20 7755 4103
fax +44 (0) 20 7636 5252
info@makearchitects.com
www.makearchitects.com

Client
National Grid Property Limited

North

Project
West Southall Masterplan

Drawing Title
Public and private realm

Figure 3.4p

Scale	Paper Size	Date
1:2000	A0	29.08.08

Project No.	Draw No.	Rev No.
0317	P1001	00

Reproduced from Make, 2008

RPS

Date:	02.09.08	Scale:	NTS	Rev:	
Job No:	JLD0211	Drawn:	MB	Checked:	CC

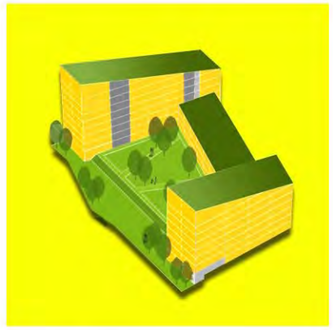
Project: West Southall

Title: Typologies

Figure No: Figure 3.5a

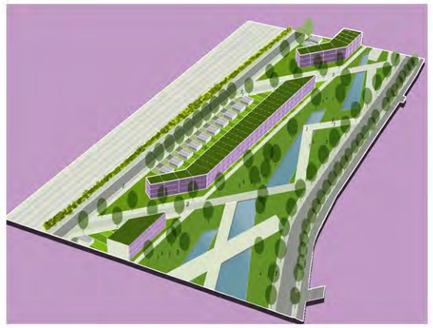
www.rpsgroup.com

Drawing Ref:

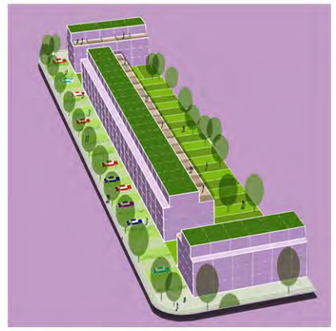


Typology 1

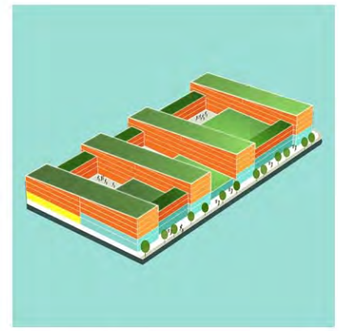
Typology 2



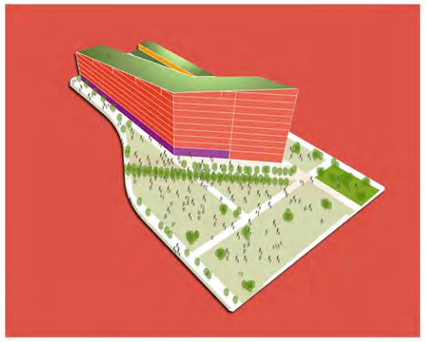
Typology 3a



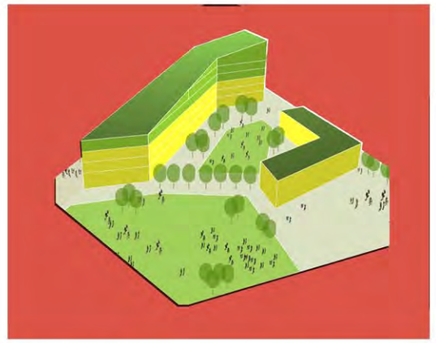
Typology 3b/c



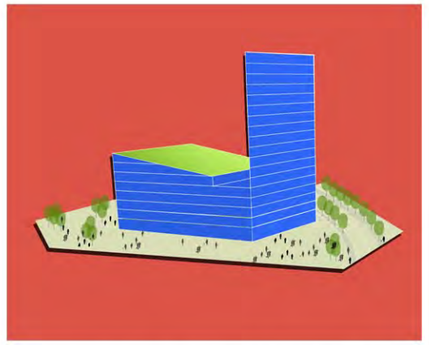
Typology4



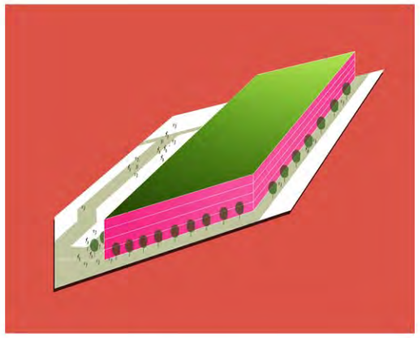
Typology 5.1 (Hotel and Banqueting)



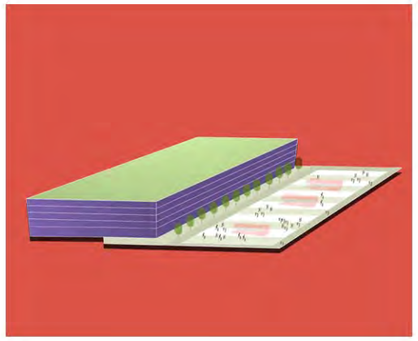
Typology 5.2 (Education / Health Centre)



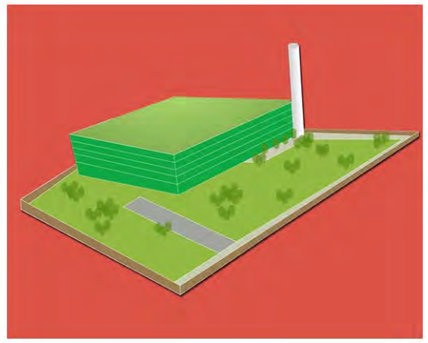
Typology 5.3 (Landmark Building)



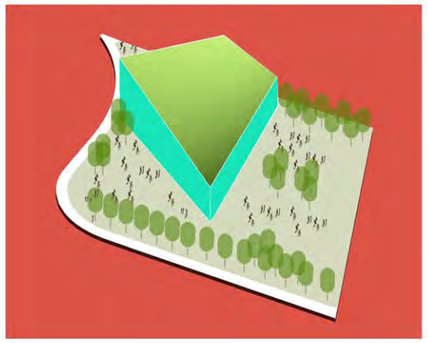
Typology 5.4 (Cinema)



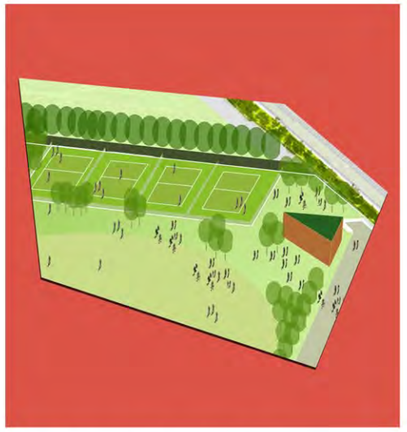
Typology 5.5 (Car park)



Typology 5.6 (Energy Centre)



Typology 5.7



Typology 5.8 (Sports Pavillion)

Reproduced from Make, 2008

RPS

Date:	02.09.08	Scale:	NTS	Rev:	
Job No:	JLD0211	Drawn:	MB	Checked:	CC

Project: West Southall

Title: Typologies

Figure No: Figure 3.5b

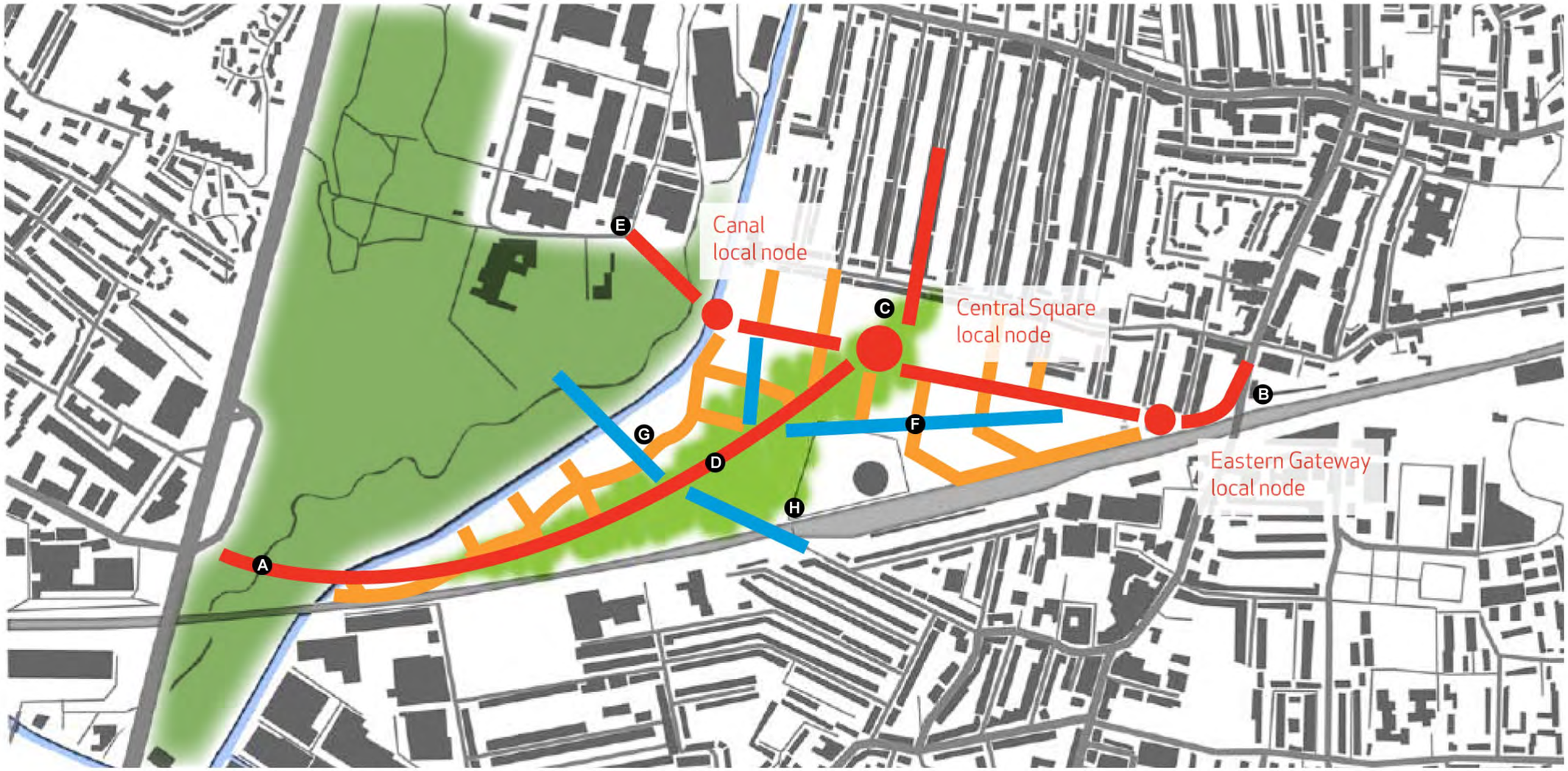
www.rpsgroup.com

Drawing Ref:

Primary route

Secondary route

Tertiary route



Reproduced from Make, 2008

RPS

Date:	09.01.08	Scale:	NTS	Rev:	
Job No:	JLD0211	Drawn:	RD	Checked:	CC

Project:
West Southall

Figure No:
Figure 3.10

Title:
Access Routes and Circulation

www.rpsgroup.com

Drawing Ref:

- Off-street parking - secure basement / courtyard
- Off-street parking - external
- On-street parking
- Multi storey parking
- Coach parking
- Townhouse integral or separate garage

Reproduced from Make, 2008

RPS

Date:	02.09.08	Scale:	NTS	Rev:	
Job No:	JLD0211	Drawn:	MB	Checked:	CC

Project: West Southall

Title: Car Parking across the Proposed Development

Figure No: Figure 3.11

www.rpsgroup.com

Drawing Ref:

4 ALTERNATIVES AND DESIGN EVOLUTION

4.1 Introduction

4.1.1 This Chapter describes the alternatives that have been considered by the Applicant as part of the design evolution, culminating in the form of development that comprises the Application Scheme. It identifies the key principles for the design of the development and demonstrates how the proposals have responded positively to the location of the Site within a defined Opportunity Area (as allocated in the London Plan) to deliver a comprehensive and integrated form of development that makes optimum use of the Site's location.

4.2 'Do Nothing' Alternative

4.2.1 The EIA Regulations Schedule 4 Part I (2) requires the ES to include "*an outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for his choice, taking into account the environmental effects*". However, in the absence of specific alternative development proposals the 'do nothing' scenario has been described.

4.2.2 The existing Site is currently used in part as an off-site car park for Heathrow Airport which does contribute to the local economy, including the employment of site operatives and security staff and generation of income to the Applicant. However, due to the density of car parking (one surface level), the future economic potential for the Site under this low intensity use is limited. The Site also presently contributes little socially; is inaccessible to the public; is considered by some to be an 'eye sore'; and, is of low ecological value, all of which are reflected in the baseline surveys of the technical chapters (see Chapters 6 to 17 of this ES).

4.2.3 If the Site were left undeveloped, the disused recreational area to the north east of the Site may become increasingly overgrown. This could result in some benefits to local biodiversity, as the Site would be colonised by various wildlife over time. However, such benefits would be offset by lack of public access and potential risks to health and safety, were trespassers to access the Site. Also, the significant opportunity to regenerate the Site with much needed homes, employment space, shops and community facilities would be forgone.

4.3 Site Designations

4.3.1 National planning policy guidance seeks to make the most efficient use of previously developed land within urban areas. The adopted London Plan (consolidated with alterations since 2004) [(4.1)] includes the Application Site within the 'Heathrow Opportunity Area' (including Hayes, West Drayton, Southall, Feltham, Bedfont Lakes and Hounslow). Policy 2A.5 of the adopted London Plan confirms that frameworks will be prepared for Opportunity Areas which will set out a sustainable development programme contributing to the overall strategy of the London Plan which:-

- Seeks to exceed the minimum guidelines for housing having regard to indicative estimates for employment capacity set out in the sub-regional tables.
- Maximise access by public transport;
- Promote social and economic inclusion and relate development to nearby Areas for Regeneration;
- Take account of the community, environmental and other distinctive local characteristics of each area;
- Deliver good quality design, including public realm, open spaces, and where appropriate, tall buildings; and
- Coordinate development that crosses borough boundaries, where appropriate.

4.3.2 The Application Site is also identified as a 'Development Site' and a 'Special Opportunity Area' within the adopted Ealing Unitary Development Plan (UDP) (2004) (2007 Saved Policies) [4.2]. The Special Opportunity Area designation is intended to convey that the Council will use its powers, as the local planning authority (LPA), to encourage and negotiate development schemes that fulfil their potential to act as major examples of investment for their wider hinterland, while addressing the individual Site's problems.

4.3.3 The principles of the Scheme are to fulfil the above objectives, thereby playing a significant part in achieving the goals of both the regional and local planning authorities. Consequently, further alternative uses for the Site other than the 'do nothing' scenario have not been considered further. The West Southall Scheme will fulfil a unique opportunity to regenerate one of the largest remaining brownfield sites in West London. The Proposed mixed use scheme complies with relevant policy and site allocations. Alternative sites or land uses are therefore not relevant in these circumstances.

4.4 2005 Southall Gasworks Scheme

4.4.1 In June 2005, the predecessors in title to the Application Site - SecondSite Property Holdings Ltd (now National Grid Property Ltd), in joint venture with Castlemore Securities Ltd, submitted an outline planning application to LB Ealing for the redevelopment of the Site (the '2005 Scheme'). This outline application (application reference: P/2005/2398) was accompanied by full applications for three vehicle accesses – 'Springfield Link Road', 'Pump Lane Link Road' and the 'Eastern Access' (application reference numbers: P/2005/240; P/2005/2402; and P/2005/2400) and one pedestrian bridge -'Minet Footbridge' (application reference number: P/2005/2403).

4.4.2 As the western accesses traversed the borough boundary, and in accordance with prevailing policy at the time, separate duplicate applications were submitted for each to LB Hillingdon (application reference numbers: 54814/APP/2005/1773; 54814/APP/1775; and, 54814/APP/2005/1781).

4.4.3 In total, eight applications were submitted for the '2005 Scheme' (five to LB Ealing and three to LB Hillingdon). The applications comprising the '2005 Scheme' were accompanied by a series of principal reports including the ES, a comprehensive Master Plan relating to the Main Site, Parameter Plans to inform the EIA and establish certain thresholds for the development, and other reports containing supporting information to the applications.

4.4.4 A Steering Group comprising LB Ealing, LB Hillingdon, the London Borough of Hounslow (LB Hounslow), the Greater London Authority (GLA), Transport for London (TfL), London Development Agency (LDA), British Waterways Board, Southall Regeneration Partnership and the Applicants was established in 2003 to discuss issues surrounding the development of the Site. Further submissions and comments on the 2005 Scheme were raised by the statutory authorities, community groups and members of the public during an ongoing public consultation process, both prior to and following the applications being submitted.

4.4.5 The 2005 Scheme proposed to accommodate a high density mix of residential, commercial, leisure, retail and hotel facilities together with community facilities, open space and landscaping. Up to 4500 residential units were proposed. Figure 4.1 shows the previous 2005 Master Plan.

4.4.6 Planning permission for the proposed new Pump Lane Link Road was refused by LB Hillingdon on 30 November 2005, and similar refusals followed for the proposed Minet Footbridge on 7 December 2005 and for the Springfield Link Road on 6 February 2006. These refusals were for a number of reasons, including: appropriateness of the Development in Green Belt land; flood risk; traffic and highways safety; impacts on the ecological value of the Yeading Brook and GUC Paddington Branch river corridor and on Minet Park; and, the loss of existing sports pitches. Associated applications for the construction of a flood storage lagoon and reserved matters applications tied to an extant outline planning permission for the construction of the Pump Lane Road Link were also refused. Subsequent appeals against these decisions were lodged. However, the appeals were withdrawn, in favour of pursuing a revised scheme.

4.4.7 LB Ealing did not determine the outline application for the Main Site. However, it was apparent that, whilst generally supportive to the principles of the development, there were concerns with the design, layout and density, configuration of the retail and the nature and quantum of open space proposed. The main outline application was withdrawn in November 2006. In response to the comments

raised, the Applicants commenced a full review of the design and appointed a new lead master planning architect, Make, in February 2007.

4.5 Design Evolution

Review of the Previous Application

4.5.1 The feedback from the consultation on the 2005 Scheme and a new phase of consultation (including a public exhibition in May 2007) helped inform the early reappraisal of the Site and main design alternatives. The key alternatives which were considered as part of the creation of the new Scheme were as follows:

- Reduction in the total number of residential units.
- Exclusion of airport parking.
- Fewer tall residential buildings.
- Concentration of, and increases in public open space.

Canal Inlets

4.5.2 Both the previous 2005 Scheme and the present scheme have explored the provision of canal inlets into the Site, seeking to re-establish historic industrial canal basins. However, such major excavations raised financial and logistical challenges including significant groundwater, contamination and underground construction issues. They also created difficulty in bridging the Canal while maintaining an accessible public realm. The preferred alternative has therefore been to create a continuous open space frontage along the Canal, parallel to the towpath.

Design concept and determining the brief (March to April 2007)

4.5.3 Developing a balanced mix of uses connected by good public space is critical to ensure successful regeneration of the Site.

4.5.4 To truly understand the mix of uses that are required to make West Southall a success, Savills undertook complementary strands of research comprising the following:

- Analysis of the London residential market and the potential for a large mixed-use development at Southall to attract excess demand from established markets, in the context of competing schemes in the local and other markets;
- Research into the preferences and purchasing power of potential Asian purchasers, focussing on households within the local community, wider British Asian demand within London and investor demand from India; and
- Placemaking research, to ascertain the mix and layout of residential, commercial property and other land uses that will create high demand and land value for the Scheme (particularly to recover the high remediation and infrastucture costs associated with the development of the Site).

4.5.5 The results of the Savills research are summarised in Table 4.1.

Table 4.1 Summary of the Results of Research carried out by Savills on Southall (2007)

Use	Existing	Need within Southall
Residential	Southall is predominantly made up of poor quality terraced housing around the town centre and larger semi-detached properties around the town's boundaries.	The market demand within the Southall community is therefore for larger family houses and apartments.
Retail	Specialized shopping and out of town retail.	Multiple high street retailers. Travel between Southall and adjacent centres demonstrates under provision in Southall of multiple retail stores to serve the local community.
Business and services	Small scale professional services and local businesses.	Modern accommodation for local small businesses as other centres with greater public transport connections will continue to be more attractive to larger businesses and Southall's proximity to Heathrow Airport will ensure it will remain a significant employer for Southall's residents.
Health	General Practitioner (GP) surgeries distributed in small surgeries throughout the town.	Consolidated health centre comprising GP and day surgeries.
Education	Good provision at primary and nursery level with capacity at secondary level.	Additional primary and nursery accommodation required in line with increased development on the gasworks site (sufficient capacity at secondary level) Educational facilities may be integrated within a larger complex including a health centre.
Hotel	Hotels catering for Heathrow Airport on surrounding road.	High quality hotel in town centre.
Conference/banquet	Facilities for large functions to be accommodated in some of the adjacent airport hotels or dedicated facilities in Wembley and central London.	Banqueting and business exhibition facilities in town centre.
Café bars and restaurants	Good Asian restaurants and bars but very few cafes.	Cafes and good western restaurants to offer ethnic diversity.
Cinema	Specialist Asian cinema on limited leasehold.	Multi-screen facility catering for both Asian and western films concurrently.
Community facilities	Wide range of good facilities.	Local facilities generated by development on the gasworks site.
Places of worship	Wide range of temples and churches catering for principal faiths. Some places of worship are regional centres with great capacity.	Existing provision will serve development on the gasworks site.
Light industrial units	Many light industrial units, often freehold in tenure.	Modern accommodation for small scale studio spaces.
Long-term airport parking	Extensive parking on gasworks site.	Reduced demand due to future improved airport public transport connections (Crossrail, EuroStar etc.)
Short-term retail and residential parking	Limited carparks serving the town centre and most residential parking on-street.	Opportunity to increase the town centre parking provision and improve the West Southall masteplan's residential parking ratio compared to Southall.
Park and open space	Limited provision to the north and south of the gasworks site and	Recreational park to serve existing and new communities.

Use	Existing	Need within Southall
	restricted access between Minet Country Park and Southall town centre.	Connections over Canal and Yeading Brook to Minet Country Park.
Civic space	Streets and parks used for civic congregations.	Civic squares to accommodate festivals, markets and other public gatherings.
Canal-front	Underused amenity space in terms of canal and towpath.	Connected towpath as part of the 'Blue Ribbon' initiative with leisure oriented zone.
Energy centre	All energy provided by the national infrastructure.	Deliver sustainable energy solutions and achieve on-site renewable energy production targets for the gasworks site with opportunity to supply future town centre development.

4.5.6 The broad balance of mix of uses selected for the Site was based on the findings of Savills' and other research. The aim was to achieve a range of uses that would benefit each other to be financially and socially sustainable, accommodate change and respond to the prevailing economic climate.

Residential Concept

4.5.7 The residential element of the Scheme would therefore follow design principles that:

- Create a High Street of critical mass in the most well connected location on the Site, linking to Southall Town Centre and integrating with residential and fine grain commercial accommodation;
- Develop a leisure place facing the Canal and Park to include café bars and restaurants;
- Form a mixed-use cluster, including retail, café bars, hotel, education and health centre, and residential accommodation, around a civic square to ensure vibrancy; and
- Surround the Central Park and Canal with residential accommodation to optimise the environmental and economic benefit and ensure natural surveillance.

4.5.8 Determining the overall quantum of accommodation has been both design-led and subject to rigorous financial appraisal.

4.5.9 The building forms respond to the Scheme's different character areas, however, the unifying principle is that buildings shall have a linear grain that physically integrate the Scheme with its environs.

Open Space Concept

4.5.10 The relationship of open space has informed the Scheme's layout and massing as buildings facing either Minet Country Park, the proposed Central Park or Town Square rise from lower levels. The layout is one where the new Central Park and Civic Square are enclosed by built edges and streets form viewing corridors between the development and the adjacent neighbourhoods.

Design Iteration 1 (June to July 2007)

4.5.11 The development of the design has been an iterative process following a logical sequence of strategic decisions to refine the design alternatives through analysis of the Site and its context. The first design iteration considered the distribution of uses, density and massing across the Site in response to the design concept, site constraints and brief. Figure 4.2 presents Design Iteration 1.

Retail

4.5.12 The extent of the High Street was reviewed by the design team and retail specialists who advised on the optimum quantum of retail floor space to successfully complement Southall's existing retail provision. The review resulted in the inclusion of a food store fronting the High Street, and additional retail units with floor areas ranging between 11,000 m^2 and 15,500 m^2 comprising a mix of unit size.

4.5.13 From South Road, the High Street extended approximately half-way across the Site toward the Grand Union Canal and the Springfield Road Bridge which, in design terms, presented the ideal location to form a civic space - the Town Square.

4.5.14 The form and character of the High Street and Town Square was presented at Design Iteration 1 as two alternates illustrated in Figure 4.2, as follows:

<u>Town Square at the north of the Site</u>

4.5.15 Visually continuous High Street from the Water Tower to the Canal, with the Town Square at the north end of the retail High Street and intersection with the primary route through the Central Park.

Town Square in 'classical' formation

4.5.16 Town Square in a 'classical' configuration (i.e. based on the concept of the Italian Piazza, with entrances to the space from the four corners). This configuration clearly defines the retail section of the High Street (East Street) and forms a quieter leisure and retail oriented section (West Street) toward the Canal.

4.5.17 The linear arrangement of buildings adjacent to the railway was developed as multi-storey, long-term airport parking to the west of the retained gasholder. A cinema and multi-storey car park, to serve the Site and town centre, were located to the east of the retained gasholder. Concern in respect of negative visual impact of the airport parking and its long-term economic and sustainable viability ultimately resulted in its replacement with dual aspect houses protected by a 'green wall' providing an attractive visual and acoustic screen to the railway.

Accesses

4.5.18 The Eastern Access and the Pump Lane Link Road vehicular accesses did not deviate from those principles agreed within the previous application within Design Iteration 1, however the number and character of access connections under the railway and over the Canal and Yeading Brook were assessed.

4.5.19 Two main alternatives for these accesses were considered as outlined below:

Canal/Yeading Brook and railway crossing Alternate 1

- One Vehicular route connecting the Hayes Bypass with the proposes Scheme over the Canal and the Yeading Brook;
- Two pedestrian/cycle bridges over the Canal and Yeading Brook connecting to the Minet Country Park;
- One vehicular/pedestrian bridge connecting the Scheme with Springfield Road over the Canal and Yeading Brook;
- One (existing and to be refurbished) pedestrian route under the railway west of the retained gasholder; and
- One vehicular/pedestrian bridge connecting the Scheme with Brent Road under the railway.

Canal/Yeading Brook and railway crossing Alternate 2

- Three pedestrian/cycle bridges over the Canal and Yeading Brook connecting to the Minet Country Park and Springfield Road;
- One Vehicular route connecting the Hayes Bypass with the Scheme over the Canal and the Yeading Brook; and
- Two pedestrian routes under the railway west of the retained gasholder.

Canal/Yeading Brook and railway crossing Alternate 3

- One Vehicular route connecting the Hayes Bypass with the Scheme over the Canal and the Yeading Brook;
- Two pedestrian/cycle bridges over the Canal and Yeading Brook connecting to the Minet Country Park;
- Two pedestrian routes under the railway west of the retained gasholder.

4.5.20 Assessment of the design and transport implications of these design options concluded that Alternate 1 had the potential to create 'rat-runs' through the Development and that, due to the

inclusion of an additional southern pedestrian bridge across the Canal and Yeading Brook, Alternative 2 would increase the impact on the existing natural ecological habitats in the Minet Country Park. Alternate 3 was therefore the chosen option for Design Iteration 1.

Conclusion of Design Iteration 1 Period.

4.5.21 The 'classical' configuration was the most successful Town Square/High Street configuration following the consultation process.

4.5.22 Design iteration 1 formalised the initial Scheme to allow for the financial appraisal. The formalisation of the Scheme also allowed for the development to be presented to LB Ealing and its design advisors, as well as the Commission for Architecture and the Built Environment's (CABE) design review panel and the Greater London Authority's (GLA) design officers. The proposals were generally supported by all of these parties.

4.5.23 The financial appraisal identified that greater density was required to increase the value of the development to recover the high cost of the site remediation. CABE's design review panel suggested the public realm could be strengthened by reducing the area of Park in favour of additional development on the western edge.

Design Iteration 2 (August to October 2007)

4.5.24 Figure 4.3 illustrates Design Iteration 2.

Noise Barrier

4.5.25 A noise assessment was undertaken on Design Iteration 1 by RPS's noise team. The assessment found that a noise barrier would be required between the residential dwellings along the southern edge of the development adjacent to the railway.

4.5.26 The modelling demonstrated that the noise barrier would be most effective if located at the top of the northern edge of the railway embankment. Therefore, an acoustic barrier was incorporated into the Scheme along this boundary.

Eastern Access

4.5.27 One area that was significantly revised during this design iteration was the Eastern Access and its junction with South Road. Design Iteration 1 retained The Crescent and the row of terraced houses north-east of the listed Water Tower and included a new vehicular route under South Road, passing to the south of the Gurdwara Temple and connecting to Park Avenue. Following a re-evaluation of the scheme, a decision was taken to create a more direct link to South Road which involved re-aligning The Crescent and the demolition of the row of terraced houses plus commercial properties and an additional six properties on Randolph Road's southern end. The benefit was a greatly improved pedestrian and vehicular access at this important gateway to the proposed development.

4.5.28 The landscaping plans for the areas surrounding the Eastern Access were revised following consultation with the Strategic Planning Manager at the Greater London Authority. The plans increase the level of privacy for residents in the nearby residences.

Disposition of Uses

4.5.29 Increasing the quantum of development around the 'Central Park' gave greater definition to the development and significantly improved the scheme's viability.

4.5.30 The design was assessed to ensure optimum access in respect of pedestrians, cyclists, vehicles, servicing, public transport and links into the existing Town Centre. The points of access and egress were confirmed and the junction capacity and design was refined by the Transport Consultants, SBA.

4.5.31 The areas allocated for the Primary School and Health Centre were agreed with the LB Ealing's Education Department and the Primary Care Trust respectively.

Sustainability

4.5.32 In response to strong policy support, a Statement of Development Principles for the Site was prepared by LB Ealing and the Greater London Authority (GLA) in December 2003 [(2.3)]. This document reflects adopted policies of the London Plan, the Mayor's Economic Development Strategy and Transport Strategy, and LB Ealing's adopted UDP. This document notes that development on the former gasworks site must meet local and sub-regional needs and be a "renowned example of sustainable urban design".

4.5.33 Strategic Sustainability Consultants (Beyond Green) were appointed by the Applicant to provide ongoing assessment of the West Southall Scheme in term of sustainable aims, including the development's energy consumption, through setting targets to reduce the development's overall energy consumption.

4.5.34 On-site generation of combined heat and power (CHP) is one way in which the Scheme aims to promote sustainability. The CHP biomass Energy Centre was originally proposed to the west of the operational gasholder. A number of air quality assessments were carried out to model the interaction of the West Southall Energy Centre emissions with the microclimate of the gasholder in this position and the results were less than favourable. Therefore, the West Southall Energy Centre was repositioned to the east of the gasholder where the air quality assessments provide more acceptable levels of NOx, PM_{10} and $PM_{2.5}$.

4.5.35 Subsequently, the opportunities presented by Blue-NG's 'Turbo Expander' concept, to provide an alternative secure source of renewable energy for the West Southall Scheme, have been explored although the Scheme is not dependent on this facility achieving planning permission and being built on site.

Conclusion to Design Iteration 2

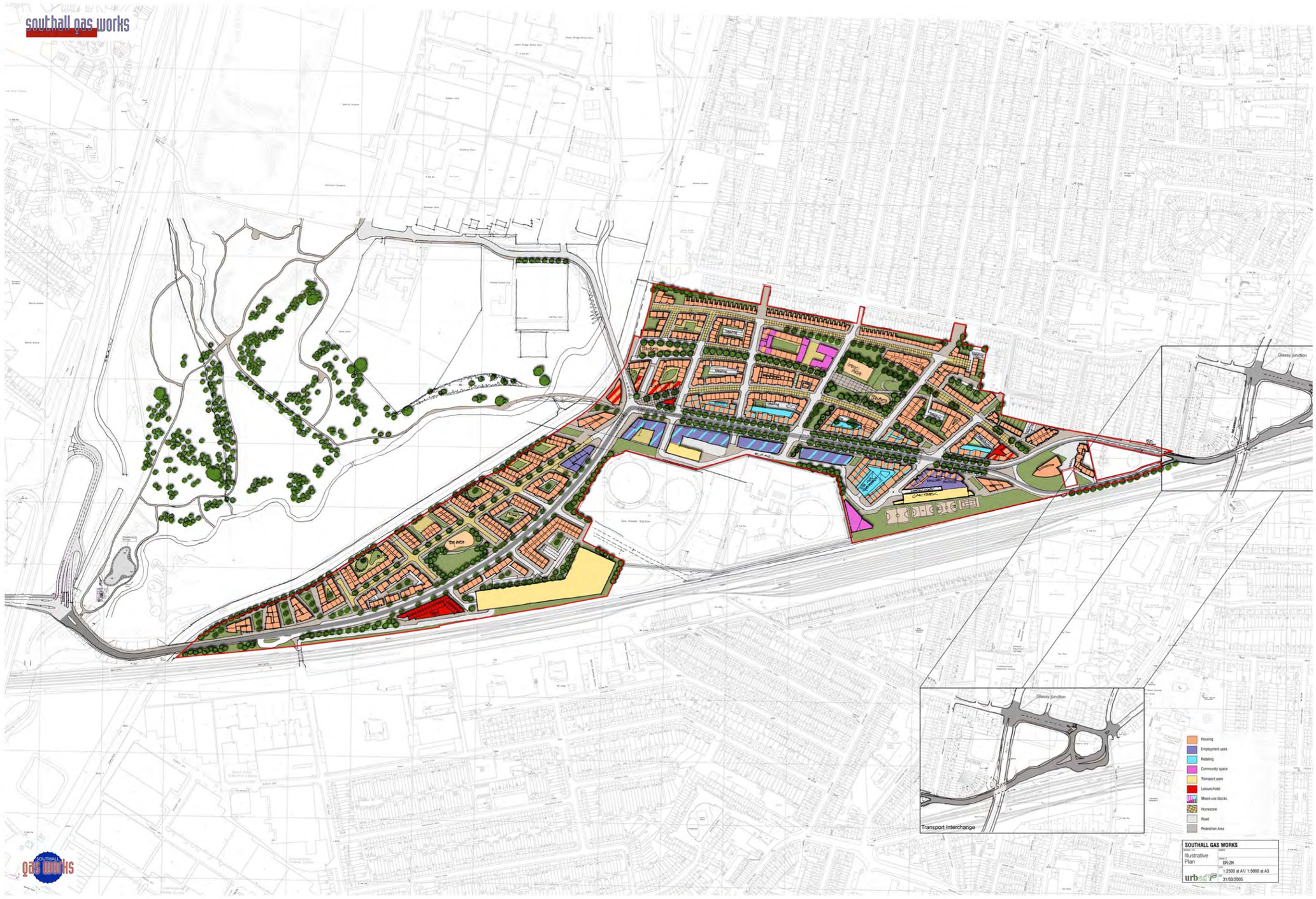
4.5.36 Design Iteration 2 was presented to the former Mayor and Deputy Mayor of London on 17th September 2007 who supported the proposals for West Southall in respect of design and its approach to sustainability. The Proposed Scheme layout was then 'frozen' to allow for production of the planning application documents and the Parameter Plans. However, minor ongoing design enhancements and detailing of the Scheme has continued since this time and the outcome of this work is represented in the Design and Access Statement (DAS) which accompanies the Planning Applications.

References

4.1 Greater London Authority (GLA) (2004) London Plan: consolidated with alterations since 2004.

4.2 London Borough of Ealing (2004) Unitary Development Plan (UDP) 2007 Saved Policies.

4.3 London Borough of Ealing and The Mayor of London (2003) Former Southall Gasworks, Southall – Development Principles Draft Supplementary Guidance. December 2003



Reproduced from Urbed, 2005

RPS

Date:	22.05.08	Scale:	NTS	Rev:	
Job No:	JLD0211	Drawn:	RD	Checked:	CC

Project: West Southall

Figure No: Figure 4.1

Title: 2005 Southall Gasworks Scheme

www.rpsgroup.com

Drawing Ref:

Reproduced from Make, 2007

RPS

Date:	22.05.08	Scale:	NTS	Rev:	
Job No:	JLD0211	Drawn:	RD	Checked:	CC

Project: West Southall

Figure No: Figure 4.2

Title: Design Iteration 1

www.rpsgroup.com

Drawing Ref:

Reproduced from Make , 2007

RPS

Date:	22.05.08	Scale:	NTS	Rev:	
Job No:	JLD0211	Drawn:	RD	Checked:	CC

Project: West Southall

Figure No: Figure 4.3

Title: Design Iteration 2

www.rpsgroup.com

Drawing Ref.

5 PLANNING POLICY CONTEXT

5.1 Introduction

5.1.1 This chapter outlines planning guidance and policies at national, regional and local level. The purpose of this chapter is to set out the policy framework against which the Proposed Development should be assessed. It also provides an indication of the future development context of Southall and the wider area against which the likely impacts of the Proposed Development of the Site should be assessed in terms of likely direct, indirect and cumulative effects.

5.1.2 The Development Plan consists of the adopted LB Ealing Unitary Development Plan (UDP) (2004), LB Hillingdon UDP (1998) and the adopted London Plan (consolidated with alterations since 2004) (February 2008). Other relevant policy considerations are National Planning Guidance Notes and Circulars, White Papers, and other Government guidance publications and various Supplementary Planning Guidance Documents prepared by the GLA and the Councils.

5.2 National Policy Guidance

5.2.1 Planning Policy Guidance Notes (PPG's) and Planning Policy Statements (PPS's) set out Government policy on different aspects of planning.

5.2.2 National Policy Guidance, in PPS1, PPS3 and PPG13, seeks to make the most efficient use of previously developed urban land, particularly to provide for much needed housing.

Planning Policy Statement (PPS1) – Delivering Sustainable Development (1997)

5.2.3 Planning Policy Statement 1: Delivering Sustainable Development (2005) sets out the strategic planning aims of the Government. This document replaces PPG1 – General Policy and Principles (1997). PPS1 states that 'sustainable development is the core principle underpinning planning' (para. 3). Paragraph 5 recognises that planning should facilitate and promote sustainable development by:

- Making suitable land available for development;
- Contributing to sustainable economic development;
- Ensuring high quality development through good and inclusive design, and the efficient use of resources; and
- Ensuring that development supports existing communities and contributes to the creation of safe, sustainable, liveable and mixed communities, with good access to jobs and key services.

5.2.4 Paragraph 23 acknowledges the need to promote a strong, stable and proactive economy, achieved in part through ensuring:

"*the provision of sufficient, good quality, new homes (including an appropriate mix of housing and adequate levels of affordable housing) in suitable locations, whether through new development or through the conversion of existing buildings*".

5.2.5 Paragraph 27 recognises the need to promote sustainable development and encourages local planning authorities to:

"*…(vii) reduce the need to travel and encourage accessible public transport provision to secure more sustainable patterns of transport…*

(viii) promote the more efficient use of land through higher density, mixed use developments and the use of suitably located previously developed land and buildings…"

5.2.6 The Proposed Development to which this application relates specifically meets these two criteria. PPS1 goes on to state that major mixed-use developments should be properly integrated with the surrounding area in terms of land use and design (criterion vi). The proposed mixed uses are entirely complementary to the surrounding area. The detailed design of the Proposed Development is complementary to the proposals for surrounding sites.

5.2.7 PPS1 sets out policy on design. Paragraph 34 states that design which is inappropriate in its context, or fails to improve the character and quality of an area or its function should not be accepted. Whilst visual appearance and architecture are factors required in achieving character and quality, good design which integrates the new form of development into the existing built and natural environment, addresses the connections between people and places, creates an environment where everyone can access and benefit from opportunities, whilst taking consideration of the direct and indirect impacts on the natural environment, is considered imperative (para. 35).

5.2.8 The issue of urban design is a material consideration and PPS1 confirms that good design is indivisible from good planning (para. 33). As this application is in outline, with all design related matters reserved for further consideration, detailed design matters are not the subject of consideration for this application. However, the applicants are keen to ensure that development on this site would be of the highest quality, and that regard will be had to development plan policies and supplementary design guidance. In this regard, a Design Statement has been prepared that provides guidance as to the type and form of development proposed in line with the design vision for the site.

5.2.9 Paragraph 36 of PPS1 confirms that a key objective should be to optimise the potential of the site to accommodate development, create and sustain an appropriate mix of uses and support local facilities and transport networks. Local authorities are required to promote the more efficient use of land through higher density, mixed use development and the use of suitably located previously developed land. Paragraph 27 part (viii) states that:

"…*Planning should seek actively to bring vacant and underused previously developed land and buildings back into beneficial use to achieve the targets the Government has set for development on previously developed land*."

5.2.10 In terms of design, PPS1 also advises that high quality and inclusive design should be the aim of all those involved in the development process (33). High quality design should create well-mixed and integrated developments and have well planned public spaces that bring people together and provide opportunities for physical activity and recreation (para. 35).

Planning Policy Guidance 2 (PPG2) – Green Belts (1995)

5.2.11 The land to the west of the Canal is within the Green Belt. The policy on Green Belts is set out in PPG2. In paragraph 3.1 of PPG2 it is stated that general policies controlling development in the countryside apply with equal force in Green Belts, but there is, in addition, a general presumption against inappropriate development within them. 'Inappropriate' development is, by definition, harmful to the Green Belt. Such development should not be approved, except in 'very special circumstances'. The applications include three new developments, the vehicular and pedestrian accesses, within the Green Belt and these include the proposed bridges. One of these routes (the Pump Lane Link Road) is already safeguarded in LB Hillingdon's UDP. The others are promoted in

the Development Principles for the Southall Gasworks site as approved by LB Ealing and the GLA. They are all essential for the good planning of the area to assist in regenerating the former gasworks site.

Planning Policy Statement 3 (PPS3) – Housing (2000)

5.2.12 PPS3 sets out the national planning policy framework for delivering the Government's housing objectives. The guidance has been developed in response to recommendations in the "Barker Review of Housing Supply" released in March 2004 and aims to underpin the necessary step-change in housing delivery, through a new, more responsive approach to land supply at the local level.

5.2.13 Paragraph 10 outlines the housing policy objectives and sets the following specific outcomes for the planning system to deliver:

- High quality housing that is well-designed and built to a high standard.
- A mix of housing, both market and affordable, particularly in terms of tenure and price, to support a wide variety of households in all areas, both urban and rural.
- A sufficient quantity of housing taking into account need and demand and seeking to improve choice.
- Housing developments in suitable locations, which offer a good range of community facilities and with good access to jobs, key services and infrastructure.
- A flexible, responsive supply of land – managed in a way that makes efficient and effective use of land, including re-use of previously-developed land, where appropriate.

5.2.14 The Proposed Development are also of a high standard of design, in full accordance with the objective in PPS3 which seeks to provide *"high quality housing that is well-designed and built to a high standard"* (para. 10) and, which *"creates or enhances, a distinctive character that relates well to the surroundings and supports a sense of local pride and civic identity"* (para. 16).

5.2.15 Paragraph 20 of PPS3 relates to achieving a mix of housing and states that:

"*Key characteristics of a mixed community are a variety of housing, particularly in terms of tenure and price and a mix of different households such as families with children, single person households and older people*."

5.2.16 The Proposed Development is in accordance with the objectives contained within PPS3.

Planning Policy Statement 6 (PPS6) – Town Centres (2005)

5.2.17 Guidance on retail development is provided in Planning Policy Statement 6 (PPS6). PPS6 seeks to make the most efficient use of land through locating development, wherever possible, within existing town centres. It states that local authorities, in considering retail proposals, can also have regard to material considerations such as physical regeneration, employment (high skill opportunities or opportunities that are particularly important given the local labour market), economic growth and social inclusion. The Retail Impact Assessment (submitted with the Planning Application) assesses both the comparison and convenience elements of the retail floorspace. Specifically, it assesses whether the proposals meet the retail 'tests' embodied in PPS6, namely need (both quantitative and qualitative), scale, impact and the sequential test.

Planning Policy Guidance 17 (PPG17) – Open Space, Sport and Recreation (2006)

5.2.18 Planning Policy Guidance 17 (PPG17) addresses open space, sport and recreation issues. It notes that well planned and maintained open spaces and good quality sports and recreational facilities can play a major part in improving people's sense of well being in the place they live. They also have a vital role to play in promoting healthy living. It requires local authorities to undertake Audits of open space and to identify both quantitative and qualitative deficits or surpluses in their areas. Local authorities are asked to set local open space standards rather than applying national standards and these should include quantitative and qualitative components. It seeks to retain existing open space, sports and recreational buildings and playing fields or to replace them with better facilities. The Application Site immediately abuts the Minet Country Park. Consideration has been given to the impact of the Development Proposals in the proceeding chapters, namely the Chapter 7: Socio-economics and Chapter 11: Townscape and Visual Effects.

5.3 Regional Planning Policy

The London Plan

5.3.1 The London Plan, published in February 2008 which consolidates alterations to the London Plan since 2004, by the Greater London Authority, is the Spatial Development Strategy for London. It sets out a planning framework for London; and together with the Ealing UDP and Hillingdon UDP, forms the statutory Development Plan for the Application Site.

5.3.2 The London Plan also provides an approach to sub-regional development. In accordance with Policy 5A.1 of the London Plan, the GLA has also produced a Sub-Regional Development Framework (SRDF) in order to assist the implementation of the policies contained in the London Plan and provide guidance on development. The Application Site is located within the West Sub-Region of the SRDF. Further details of the West SRDF will be covered later in this section.

5.3.3 The London Plan sets out the following six objectives;

- to accommodate London's growth within its boundaries without encroaching in open spaces;
- to make London a healthier and better city for people to live in;
- to make London a more prosperous city with strong and diverse long-term economic growth;
- to promote social inclusion and tackle deprivation and discrimination;
- to improve London's accessibility; and
- to make London and exemplary world city in mitigating and adapting to climate change and a more attractive, well-designed and green city.

Sustainable Development

5.3.4 The London Plan promotes sustainable development, seeking to maximise the use of previously developed land, using a design-led approach to optimise the potential of sites and ensuring that development takes place in locations that are accessible by public transport, walking and cycling; and are accessible to town centres, employment, housing, shops and services.

Employment and Housing

5.3.5 Opportunity areas are identified within London on the basis that they are capable of maximising their potential by accommodating substantial new jobs or homes. Southall is identified within Opportunity Area 10 (Heathrow) of Opportunity Area map 2A.1, which includes the areas Hayes, West Drayton, Feltham, Bedfont Lakes and Houslow.

5.3.6 Table 5F.1 of the London Plan states that the Heathrow opportunity area has an indicative employment capacity of 11,000 (between 2001-2026) and is capable to support the minimum provision of 10,750 new homes.

More specifically the following comprises a summary of the key London Plan policies relevant to the assessment of the Proposed Development at West Southall.

5.3.7 Policy 3A.3 of the London Plan states the intentions for the maximising the potential of all development sites, stating;

"*The Mayor will, and boroughs should, ensure that development proposals achieve the maximum intensity of use compatible with the local context, the design principles in Policy 4B.1 and with public transport capacity…*

The Mayor will refuse permission for strategic referrals that, taking into account local context and potential transport capacity, under-use the potential of the site."

5.3.8 Policy 3A.11 of the London Plan requires on site affordable housing provision on sites which have capacity to provide 10 or more homes. On sites which do have capacity to provide 10 or more homes, Policy 3A.9 requires a provision of 50% affordable housing with a split of 70% social housing and 30% intermediate housing within this target.

5.3.9 The London Plan's affordable housing targets are further explained by Policy 3A.10, which states that;

"*Boroughs should seek the maximum reasonable amount of affordable housing when negotiating on individual private residential and mixed-use schemes…targets should be applied flexibly, taking account of individual site costs, the availability of public subsidy and other scheme requirements*."

5.3.10 Furthermore, Table 3B.1 identifies the demand for office based jobs and floor space (between 2006 – 2026). The figures are split up between the separate sub-regions of London, and identify that there is a demand for 77,000 office based jobs (i.e. a 14% growth over the 20 year period to 2026). This figure amounts to a 1.2 million m^2 demand for office floorspace within the western sub region.

Health and Education

5.3.11 Policy 3A.21 relates to locations for health care facilities, stating:

"…*The preferred locations for hospitals, primary healthcare centres, GP practices and dentists should be identified in appropriate locations accessible by public transport*…"

5.3.12 Policy 3A.24 relates to the provision of education facilities, and requires boroughs to reflect the demand for pre-school, school and community learning facilities within the policies of DPD's and ensure adequate provision in partnership with the local education authority, local strategic partnership and users of education facilities.

Transport and Access

5.3.13 The integration of transport and development is covered in London Plan Policy 3C.1 this is referred to in Chapter 8: Transport.

Retail

5.3.14 With regards to the maintenance and improvement of retail facilities, Policy 3D.3 requires boroughs to;

"*work with retailers and others to prevent the loss of retail facilities…that provide essential convenience and specialist shopping and to encourage mixed use development*…"

Open Space

5.3.15 With regards to access to, and the enjoyment of open space and the green infrastructure, Policy 3D.8 seeks the protection, promotion and improved access to London's network of open spaces in order to realise their potential value and the benefits associated with open space areas including health, sport and recreation, children's play, regeneration, the economy, culture, biodiversity and the environment and Policy 3D.11 further identifies the priorities for protecting and promoting open space provision within London.

5.3.16 The importance of the protection and maintenance of Metropolitan Open Land (MOL) is identified within Policy 3D.10 of the London Plan. Seeking to protect MOL from inappropriate development.

5.3.17 With regards to children's play space areas, Policy 3D.13 seeks to ensure that all children have access to good quality, well-designed, secure and stimulating play spaces, ensuring that all new housing developments make provisions for children's play spaces.

5.3.18 Policy 3D.14 requires all new developments to have regard to biodiversity and nature conservation. The policy seeks to;

"…*achieve positive gains for conservation through the form and design of development*."

Climate Change

5.3.19 Tackling climate change is covered within chapter 4 of the London Plan. Policy 4A.1 states;

"*The Mayor will, and boroughs should…require developments to make the fullest contribution to the mitigation of and adaptation to climate change and to minimise emissions of carbon dioxide*…"

Design

5.3.20 With regards to sustainable design and construction, Policy 4A.3 states that

"*The Mayor will, and boroughs should, ensure future developments meet the highest standards of sustainable design and construction…Developers should use best practice and appropriate mitigations measures to reduce the environmental impact of demolition and construction*."

Energy

5.3.21 Paragraph 4.18 further supports Policy 4A.3, stating;

"*Sustainable design and construction can reduce the consumption of resources, cut greenhouse gases and contribute to the good health of Londoners*…"

5.3.22 Additionally, Policy 4A.4 supports energy assessments, and seeks improved energy efficiency and increasing the use of energy created from renewable sources. Stating:

"*The Mayor will and boroughs should, require an assessment of the energy demand and carbon dioxide emission from proposed major developments, which should demonstrate the expected energy and carbon dioxide emission saving from the energy efficiency and renewable energy measures incorporated in the development*…"

5.3.23 Policy 4A.6 requires all new developments to demonstrate that their heating, cooling and power systems have been selected to minimise carbon dioxide emissions.

5.3.24 In addition, Policy 4A.7 states that;

"…*developments will achieve a reduction in carbon dioxide emissions of 20% from on site renewable energy generation (which can include sources of decentralised renewable energy) unless it can be demonstrated that such provision is not feasible*…"

Contaminated Land

5.3.25 In relation to new developments on contaminated land, Policy 4A.33 of the London Plan states that

"*The Mayor will work with strategic partners to enhance remediation of contaminated sites and bring the land into beneficial use*."

5.3.26 Furthermore, paragraph 4.94 of the plan states;

"*The principle of sustainable development means that where practicable, brownfield sites including those affected by contamination should be recycled into new uses*…"

5.3.27 Chapter 4B of the London Plan covers the guidelines for the design of developments on London. The Plan seeks for new developments to meet a number of criteria under Policy 4B.1 'design principles for a compact city'. The basis of this policy is to sustainably maximise the potential of all development sites through a number of measures, in accordance with the objectives of the London Plan (as previously stated).

Blue Ribbon Network

5.3.28 Chapter 4C of the Plan covers London's 'Blue Ribbon Network'. The network is defined as a spatial policy, covering London' waterways, water spaces, and land alongside them. Paragraph 4.142 identifies the Blue Ribbon Network as;

"*the Thames, the canal network, the other tributaries, rivers and streams within London and London's water spaces such as docks, reservoirs and lakes…culverted (or covered over) parts of rovers, canals or streams*…"

5.3.29 The main principles of the Blue Ribbon Network include; accommodating London's growth within its boundaries without encroaching upon green spaces; to protect and enhance the Network as part of the public realm; to ensure the Network is accessible by all; and to enhance the biodiversity and landscape of the network.

5.3.30 Furthermore, Policy 4C.10 seeks to increase sport and leisure use on the Blue Ribbon Network, stating;

"…*new development and facilities that increase the use of the Blue Ribbon Network for sport and leisure use should be encouraged*…"

5.3.31 The Application Site will help deliver some of the greatest benefits to the Local and London wide area.

Housing Supplementary Planning Guidance (November 2005)

5.3.32 This guidance recognises the need to meet London's rapid population growth. Much of the new housing will have to be built in London, at high densities, which should be considered in terms of habitable rooms per hectare (as well as the number of dwellings per hectare). Higher density housing is most suitable located in urban areas close to public transport, particularly within mixed-use developments.

5.3.33 Whilst car-capped and car free housing developments are supported in these locations in order to facilitate higher densities, the guidance states that there is also scope for 'zero' parking provision.

5.3.34 The SPG sets out unmet demand and projected household growth for London. The guidance states that these provisions should not be applied crudely at the local level. The general need is for larger sized social rented units and smaller private and intermediate units.

Sustainable Design and Construction (2006)

5.3.39 This guidance document (published May 2006) sets various standards that must be applied to all new developments, along with a second tier of the 'Mayor's preferred' standards. The essential standards are based on current Building Regulations, the targets set out in the Mayor's strategies and current good industry practice. The Mayor's preferred standards indicate approaches that can be followed but which are not policy requirements.

5.3.40 The Proposed Development is in accordance with the principles set out which seek to:

- Re-use land and buildings;
- Conserve energy, materials, water and other resources;
- Ensure designs make the most of natural systems both within, in and around the building;
- Reduce the impacts of noise, pollution, flooding and micro-climatic effects;
- Ensure developments are comfortable and secure for users;
- Conserve and enhance the natural environment, particularly in relation to biodiversity;
- Promote sustainable waste behaviour in new and existing developments, including support for local integrated recycling schemes, CHP schemes and other treatment options (subject to Policy 4A.1 and 4A.2); and
- A statement showing how sustainability principles can be met in terms of demolition, construction and long-term is submitted with the Proposed Development.

Providing for Children and Young People's Play and Recreation (October 2006)

5.3.41 The GLA seek that any new residential development needs to provide some form of children's play space, preferably on-site, for all age groups. If play space cannot be provided on site it needs to be justified in policy terms. The GLA have prepared SPG Guidance (October 2006) to give developers guidance in defining the children's open space they need to provide on site as part of any new residential or mixed-use development. The GLA recommend that all play space for all age groups should be provided on site. Under 5's children's play space must be provided on-site as a minimum (within 100m). Play space for older children (5-10 and 11-15 age groups) that cannot be provided on-site must be located in very close proximity to the subject site (400m-800m). The Proposed Development provides the amenity space, which has been calculated in the context of the GLA guidance.

5.4 Local Policy Guidance

Ealing Unitary Development Plan (UDP)

5.4.1 The Ealing UDP was adopted in October 2004, and subsequently, following a direction from the Secretary of State in September 2007, a number of policies of the plan were not saved. Namely policies 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 1.11 and 5.1. The policies relevant to this proposal are as follows;

Environmental Resources and Waste Issues

5.4.2 Chapter 2 of the UDP covers environmental resource and waste issues. The Site is identified within the Ealing UDP as a 'Special Opportunity Site'. Policy 2.2 of the UDP promotes the regeneration of Special Opportunity Sites, requiring development upon such sites to be;

"…*properly integrated with the adjoining neighbourhood, both functionally and visually*…"

5.4.3 Policy 2.5 of the UDP covers issues regarding water in terms of drainage and flood prevention, ensuring that all new developments give consideration to drainage infrastructure and capacity, flood risk, surface water run-off, and surface water re-cycling, encouraging water conservation including measures such as grey water recycling and rainwater harvesting.

5.4.4 Furthermore, Policy 2.6 seeks to reduce the levels of air pollution generated by new developments.

5.4.5 With regards to new developments on contaminated land, UDP Policy 2.7 requires sites that are likely to be contaminated to have remedial works carried out upon them to avoid the likely harm that any contamination will have upon the intended use of the site and immediate area.

5.4.6 Policy 2.9 of the UDP gives specific reference to energy, stating that;

"*The Council will*:

- *Encourage environmentally sensitive forms and schemes of energy efficiency and generation…*
- *Expect all major developments…to incorporate equipment for renewable power generation so as to provide 10% of their predicted energy requirements.*
- *Seek application of energy efficiency principles and environmentally sensitive forms of energy generation wherever suitable for new development…"*

5.4.7 Chapter 2 of the UDP additionally promotes sustainable waste management and the minimisation of waste in new developments through a variety of methods such as recycling and incineration (Policy 2.10).

Open Space and Green Space

5.4.8 Chapter 3 of the UDP covers issues regarding Green Space and the Natural Environment. Policy 3.2 seeks the promotion of environmental aspects of Green Corridors along the Grand Union Canal.

5.4.9 The chapter also seeks to improve access to Public and Community and Open Spaces, encouraging suitable arts, cultural and entertainment uses through the provision of open space (Policy 3.4).

Urban Design

5.4.10 Furthermore, chapter 4 of the UDP relates to urban design, promoting development that follows a series of design principles including; good layout, is of an appropriate height and scale, uses appropriate materials, is sustainable, provides access for all, gives consideration to community safety and provides appropriate levels of hard and soft landscaping (Policy 4.1).

5.4.11 Chapter 4 additionally seeks the promotion of mixed-use development in locations with close proximity to town centres and / or good accessibility to public transport services (Policy 4.2).

5.4.12 Furthermore, Policy 4.3 seeks for new developments to be accessible for all, both externally and internally.

5.4.13 Policy 4.5 seeks the provision of well designed and integrated landscaping which has long-term maintenance and management of such landscaping proposed with any application.

5.4.14 Additionally, policies 4.6 and 4.7 seek the protection of statutory listed and locally listed buildings within the Borough.

Housing

5.4.15 Chapter 5 of the UDP covers policy issues regarding housing. Policy 5.2 relates to affordable housing provision, seeking 50% affordable housing provision on sites over 0.5ha. Additionally, Policy 5.3 requires all residential units to be built in accordance with Lifetime Homes standards, and where provision of over 10 units is proposed, 10% wheelchair accessible housing is required. Policy 5.4 of the chapter additionally requires the provision of a range of different dwelling sizes and types that reflect the needs of the local community.

Employment and Retail

5.4.16 Going further, chapter 6 of the UDP supports the development of sites for business uses. Policy 6.2 supports proposals for office development that are of an appropriate scale, and form part of a mix of uses where major developments are proposed.

5.4.17 Additionally, Policy 6.5 relates to ancillary development in major employment locations, seeking the provision of open space areas, leisure and shopping facilities to be provided in new proposals.

5.4.18 Chapter 7 of the UDP relates to shopping and town centres, requiring retail proposals to be suitable in terms of design, scale, integration, mix and character as well as minimising the use of the car and making adequate provisions for public transport services (Policy 7.2).

Community Facilities

5.4.19 Chapter 8 of the UDP seeks the provision of community facilities through new developments. The policy seeks for all major developments to prepare a statement of social impacts to address the increase in demand on community facilities. For this application all socio-economic issues have been addressed within Chapter 9: Socioeconomic effects in this ES. Where developments are more intensive, there is an obligation to provide additional community facilities to meet the requirements of the increased community (Policy 8.2).

5.4.20 Furthermore, Policy 8.7 refers to the maintenance and improvement of education facilities. The policy states that new housing and other development generally increases the demand on existing education facilities, and therefore the Council would seek contributions towards the additional provision of education facilities (Policy 8.7 para 2).

5.4.21 In addition, Policy 8.8 encourages the provision of health care facilities through proposed mixed-use developments.

Transport and Access

5.4.22 Chapter 9 of the UDP covers transport matters, these are outlined in Chapter 8: Transport.

LB Ealing Supplementary Planning Guidance (SPG) Southall Gasworks Development UB1 (2004)

5.4.23 The SPG which carries particular relevance to this Application is the Southall Gasworks Development Principles SPG. This document was produced jointly with the GLA and provides further guidance to the development principles as set out in Policy 2.2 of the Ealing UDP.

5.4.24 Additionally, Ealing Council have produced a number of further supplementary guidance notes, which deal with more specific issues. It is considered that these will carry more weight and relevance in the determination of the applications submitted at reserved matter stage.

LB Ealing Local Development Framework (LDF)

5.4.25 Whilst the UDP remains the statutory plan for Ealing, the Local Development Framework will gradually replace the UDP. The Council are currently at a preliminary stage and no LDF documents have been approved for adoption as of yet. With regards to the Development Plan Document consultations, the Core Strategy and Site Allocations Issues and Options consultation was carried out in September/October 2007. This document once adopted will form the basis and guiding principles of the LDF, through a strategic vision, objectives and core policies. The next stage of consultation will be the Preferred Options consultation on the Core Strategy and Site Allocations, with an expected consultation date of October/November 2008. The Council expect to formally adopt the complete LDF by 2010.

LB Hillingdon UDP (1998)

5.4.26 The Hillingdon UDP was formally adopted in 1998, and like Ealing, was subsequently revised following the direction from the Secretary of State. Hillingdon have since revised their UDP, highlighting the saved policies in September 2007. The policies of relevance to this application are listed below.

5.4.27 The UDP is split into two main parts, part one indicates how the plan has taken account of the guidance of the London Plan, setting out a number of objectives in accordance with the regional guidance. Part two identifies more detailed policies that are specific requirements of Hillingdon.

5.4.28 Part 2 section 1 of the UDP identifies several policies to maintain and enhance the environment. Policies OL1 and OL2 relate to development within the Green Belt.. Policy OL2 states;

"*Within the Green Belt, where development proposals are acceptable in principle…the Local Planning Authority will where appropriate seek comprehensive landscaping improvements*…"

5.4.29 Policy EC3 of the Plan requires proposals within the vicinity of sites for nature conservation importance to have regard to the environmental effects on the site which may arise as a result of development.

5.4.30 Policy BE31 relates to the value of the Grand Union Canal and seeks to promote and encourage the provision of facilities for recreational use of the canal. Furthermore, Policy BE32 seeks for proposals with sites which are adjacent to the canal to enhance the role of the canal as a wildlife corridor, encourage waterside environmental improvements, ensure that proposed buildings complement the characteristics of the canal, create public access the footpath of the canal and enhance views to and from the watercourse.

5.4.31 The plan seeks for development proposals to retain and utilise existing topographical and landscape features of development sites (Policy BE38).

5.4.32 Policy R1 of the UDP relates to the provision of open space and children's play space, stating;

"*where development is proposed in or near an area deficient in recreational open space, the local planning authority may require developers to provide publicly accessible recreational open space, including children's play space appropriate to the scale and type of development*…"

5.4.33 With regards to access to new development, Policy AM1 requires developments that will draw upon a large catchment area to be made easily accessible by public transport services.

5.4.34 Furthermore, Policy AM7 seeks to ensure that the levels of traffic generated by development proposals is acceptable in terms of the current capacity of the existing road network.

5.4.35 Additionally, Policy AM8 seeks to give priority to pedestrian routes which minimise the use of diversions in new developments, such as pedestrian crossings.

5.4.36 Policy AM9 seeks the provision of cycle routes that are well signposted and connect to the cycle network of the borough. Furthermore, Policy AM10 seeks the safeguarding of cycle routes and promotes the incorporation of extensions to the existing cycle network where they can be accommodated in new developments.

5.4.37 With regard to public transport services, Policy AM12 seeks the promotion of traffic management measures that give priority to buses.

5.4.38 Policy AM13 seeks for development proposals to provide suitable access for elderly people, the frail and people with disabilities, through the provision of mobility services, shop-mobility, and adequate disabled parking spaces.

5.4.39 Going further, Policy AM15 requires adequate parking provisions to be made for the disabled in all new development proposals.

LB Hillingdon SPGs

5.4.40 Hillingdon Council have a number of adopted Supplementary Planning Guidance notes which provide more detailed guidance on specific issues. These guidance notes are material to the

determination of planning applications. It is considered that the relevant detail of this supplementary guidance will be covered at the reserved matters submission stage for this application.

LB Hillingdon LDF

5.4.41 As with the majority of local authorities, including Hillingdon, the UDP remains the statutory plan for the borough. While the Local Development Framework will eventually replace the UDP there are currently no adopted Development Plan Documents for the borough, and the emerging LDF documents are still at consultation / production stage. The Core Strategy is currently being prepared for a further round of preferred options consultation, which is expected to be released for public consultation in October/November 2008, this document will form the basis for all other Development Plan Documents to be prepared by the Council, this will include a Proposals Map and Site Allocations DPD's, as well as various Area Action Plans. The Council expect their LDF to be formally adopted by 2010/11, however, this date is subject to change following adoption of the revised Local Development Scheme, which is expected in October 2008.

5.5 Level of Compliance of Development with Policies

5.5.1 In follow up to the above sections, Table 5.1 shows the impact of the Development on each specific planning policy and whether the Development facilitates objectives of planning policy (F), has a neutral effect on objectives of planning policy (N) or hinders objectives of planning policy (H).

Table 5.1 Policy Compliance of West Southall Development

Policy	Topic	Impact	Comments
PPS1	Delivering sustainable development	F	The application proposal seeks the development of a major mixed-use scheme in accordance of the policies of PPS1 to meet the criteria set out in this guidance.
PPG2	Green Belts	F	Where relevant, the proposals accord with this policy, giving consideration to the Green Belt designations which fall within the application boundary.
PPS3	Housing	F	The application proposals are in accordance with PPS3, on the basis that sufficient consideration has been given to matters of design, mix, accessibility and the effective use of land.
PPS6	Planning for Town Centres	F	The application proposal seeks to make the most efficient use of land for retail proposals in accordance with this policy guidance.
PPG13	Transport	F	Proposals accord with the intentions of this policy by providing access via a number of choices, particularly through the promotion of sustainable transport. Details of this are provided in Chapter 8 of this document.
PPG15	Planning and the historic Environment	F	The proposals give consideration to the Water Tower in accordance with this guidance. Details of this are provided in Chapter 15 of this document.
PPG17	Planning for open space, sport and recreation	F	Open space provisions within the proposal site conform with the requirements of this policy. Details are provided in Chapter 7 of this document.
PPS23	Planning and Pollution Control	F	The proposals have given consideration to the principles established within this guidance.
PPG24	Planning and Noise	F	The proposals have been assessed in terms of

Policy	Topic	Impact	Comments
			its noise impacts, with guidance sought in preparation of this application. Details of this are provided in Chapter 9 of this document.
PPS25	Development and Flood Risk	F	The potential flood risks associated with the proposals have been assessed through the production of a flood risk assessment. Details of this are provided in Chapter 13 of this document.
Circular 1/06	Changes to the development control system	N	A Design and Access Statement has been produced in support of the proposals, in line with this Government Circular.
Circular 05/05	Planning Obligations	N	Planning obligations will be agreed between the relevant parties, in line with this Government Circular, as well as GLA and Borough planning policy guidance.
Regional Planning Policy - London Plan (Consolidated with alterations since 2004) 2008			
London Plan (Consolidated with alterations since 2004) 2008	Policy guidance for London	F	The proposals accord with the London Plans strong emphasis on sustainable mixed-use development, which maximises the use of previously developed land.
		F	The proposed development includes affordable housing, public open space and childrens play space.
		F	The proposed development enhances the Blue Ribbon Network, through the siting of appropriate land uses and landscaping/public realm.
		F	The proposals promote and integrate sustainable transport modes and improved accessibility for all, with higher density development where appropriate.
		F	The development takes place in land allocated within the Heathrow Opportunity Area, which promotes residential and employment uses in this location.
Adopted Local Planning Policy – Ealing UDP (2004)			
2.2	Regeneration of Special Opportunity Sites	F	Promotion of the designated Special Opportunity Site.
2.5	Water – Drainage, Flood Prevention and Environment	F	Proposals give due consideration to the conservation and management of water quality and supply.
2.6	Air pollution and quality	F	Suitable mitigation measures put in place to secure an acceptable environment.
2.7	Contaminated Land	F	Remediation work to be carried out on the site.
2.9	Energy	F	Due consideration given to the provision of adequate energy efficiency measures.
2.10	Waste minimisation and management	F	Promotion of sustainable waste management and minimisation in new developments.
3.4	Public and community open space	F	Promotion of suitable access to public open space and public realm.
4.1	Urban Design	F	Promotes development that implements the use of good urban design principles.
5.2	Affordable Housing	F	Adequate provisions made through proposals.
5.3	Lifetime Homes and Wheelchair Housing	F	Proposals give due consideration and make adequate provisions in accordance with guidance.
6.2	Proposals for office development	F	Provision made at appropriate levels.
7.2	New shopping development and the	F	New shopping development at an appropriate scale, design and character, which makes

Policy	Topic	Impact	Comments
	sequential approach		adequate provision for public transport services to minimise the use of the car.
8.2	Major Development and Community Facilities	F	Addresses the need for the provision of community facilities through new development proposals.
8.7	Education Facilities	F	Contributions towards education facilities provided in accordance with the generated demand.
8.8	Health Care Facilities	F	Health care facilities to be provided in accordance with the demands of the community.
9.1	Development, Access and Parking	F	Greater emphasis on the promotion of sustainable transport modes, including walking, cycling and public transport.
9.2	Stations and Public Transport Interchanges	F	Provision for access to transport interchanges and services for large-scale development.
Adopted Local Planning Policy – Hillingdon UDP (1998)			
L1	Open Land and Countryside: Green Belt	F	Promotion of open land uses including nature conservation and open air recreational facilities.
OL2	Open Land and Countryside: Green Belt	F	Promotion of landscaping improvements through new development proposals.
EC3	Ecology and Nature Conservation: Development near Sites of Nature Conservation Importance	F	Regard given and necessary mitigation provision to potential effects on such sites.
BE31	Built Environment: Provision of Recreational Facilities for the Grand Union Canal	F	Promotion of increased recreational use of the canal.
BE32	Built Environment: Development Proposals adjacent to the Grand Union Canal	F	Promotion of the enhancement of the Grand Union Canal as a wildlife corridor, as well as promoting new development to complement the visual quality of the canal.
BE38	Built Environment: Topography and Landscape	F	Promotion of development which retains and enhances existing topographical and landscaping features.
R1	Recreation, Leisure and Community Facilities: Open Space Provision	F	Provision of accessible recreational open space appropriate to the scale of development in areas deficient in open space.
AM1	Accessibility and Movement: Catchment Areas	F	Development draws movement from a larger catchment via public transport.
AM7	Accessibility and Movement: Traffic Generation	F	Levels of traffic generated by proposals acceptable in terms of their impact upon the highways capacity.
AM8	Accessibility and Movement: Pedestrian Accessibility	F	Pedestrian routes given priority over roads, to minimise the diversion of pedestrian routes.
AM9	Accessibility and Movement: Cycling	F	Provisions made for cyclists, contributing to the wider cycle network.
AM10	Accessibility and Movement: Cycling	F	Safeguarding of existing cycle routes and incorporation of cycle route extensions.

Policy	Topic	Impact	Comments
AM12	Accessibility and Movement: Bus Priority Routes	F	Bus priority routes provided through the implication of traffic management measures.
AM13	Accessibility and Movement: Access for the elderly, frail and disabled	F	Provision of suitable access through mobility services, shop-mobility and disabled parking spaces.
AM14	Accessibility and Movement: Car Parking	F	Car-parking provision in accordance with standards.
AM15	Accessibility and Movement: Disabled Car Parking	F	Conveniently located car-parking provision for the disabled.

6 CONSTRUCTION AND PHASING

6.1 Introduction

6.1.1 This Chapter presents the anticipated programme and methodology of construction of the West Southall proposals for development Phases 1 through to 13. It identifies potential effects on the receptors in the local area and proposed mitigation to limit any impact upon the immediate environs of the development. Such generic mitigation sets the framework for the topic-specific mitigation contained in the technical chapters of this ES. This chapter also considers construction effects of the proposed access arrangements, notably Springfield Road Bridge, Pump Lane Bridge, South Road Bridge widening and the Minet Country Park Bridge.

6.1.2 From an assessment of the proposed construction methodology, it can be concluded that the more significant construction impacts would arise predominantly within the early phases of the works. Therefore, these effects would be strictly controlled, as outlined in this Chapter, and such controls would be maintained throughout the lifetime of the construction project. It is considered that the measures identified within the Chapter, particularly the adoption of a Construction Environmental Management Plan (CEMP), will limit the environmental impacts to acceptable levels and that such controls can be further developed when the detailed construction methodology and timing for each phase becomes fixed.

6.2 Planning and Legislative Context

6.2.1 The Local Authority has powers to control noise and other nuisance from building sites caused by contractors and sub-contractors under the Control of Pollution Act 1974 [6.1] and the Environmental Protection Act 1990 [6.2], if informal action fails to solve any problems. This can involve prescribing working hours and methods. LB Ealing provides guidelines for carrying out works considerately and recommends that Contractors should work in accordance with British Standard 5228 [6.3], a guide containing information and procedures for noise control on construction and open sites (also refer to Chapter 9: Noise & Vibration).

National Policy

Planning Policy Statement 23: Planning and Pollution Control, 2004 (PPS23) [6.4]

6.2.2 Although no specific reference is made in the document to construction and demolition activities within PPS23, it is assumed that they are encapsulated in the term 'development'. The principal provision relevant to the proposed development and which has been considered during the course of this EIA is paragraph 8 which states:

"*Any consideration of the quality of land, air or water and potential impacts arising from development, possibly leading to an impact on health, is capable of being a material planning consideration, in so far as it arises or may arise from any land use*."

6.2.3 Appendix A of PPS23 (Matters for Consideration in Preparing Local Development Documents and taking decisions on individual Planning Applications) includes a number of matters that may be material in the consideration of individual planning applications where pollution considerations arise. Those listed below are a selection of the most relevant to the construction and demolition stage of the proposed development (not necessarily in order of importance):

- The possible impact of potentially polluting development (both direct and indirect) on land use, including effects on health, the natural environment or general amenity;

- The possible adverse impacts on water quality and the impact of any possible discharge of effluent or leachates on surface or underground water resources;

- The need to make suitable provision for the drainage of surface water;

- The possibility that (regardless of mitigation), emissions such as smoke, vibration or noise from the development might nevertheless be seriously detrimental to amenity in addition to constituting a statutory nuisance under Part III of the Environmental Protection Act 1990;

- The objective perception of unacceptable risk to the health or safety of the public arising from the development; and

- The need to limit and, where possible, reduce the adverse impact of light pollution.

Planning Policy Statement 10: Planning for Sustainable Waste Management, 2005 (PPS10) [(6.5)]

6.2.4 Paragraph 3 of PPS10 states that local planning authorities should *"…ensure the design and layout of new development supports sustainable waste management."*

6.2.5 Paragraph 33 notes that in determining planning applications, all planning authorities should consider the likely impact of proposed, non-waste related development on existing waste management facilities where relevant. In this same regard, paragraph 34 notes that proposed new development should be supported by Site Waste Management Plans of the type encouraged by the Code of Practice published by the DTI (now DBERR). These are encouraged to identify the volume and type of material to be demolished and/or excavated, opportunities for the reuse and recovery of materials and to demonstrate how off-site disposal of waste will be minimised and managed.

Regional Planning Policy

London Plan Supplementary Planning Guidance (SPG) on Sustainable Design and Construction (May 2006) [(6.6)]

6.2.6 The Mayor's SPG on Sustainable Design and Construction sets out the following sustainable construction standards:

6.2.7 The Mayor's Essential Standards include:

- Reduce waste during construction and demolition phases and sort waste streams on site where practical;

- Reduce the risk of statutory nuisance to neighbouring properties as much as possible through site management;

- All developers should consider and comply with the Mayor's and GLA's London Best Practice Guide on the control of dust and emissions from demolition and construction;

- Comply with protected species legislation; and

- All developers should sign up to the relevant Considerate Constructors Scheme or, in the City of London, to the Considerate Contractor scheme.

6.2.8 The Mayor's Preferred Standards are as follows:

- All contractors should be required by tender requirements to sign up to the Mayor's and GLA's London Best Practice Guide on the control of dust and emissions from demolition and construction; and

- All contractors should be required by tender requirements to sign up to the relevant Considerate Constructors Scheme or, in the City of London, to the Considerate Contractor scheme.

6.2.9 The sustainable waste behaviour standards relevant to construction and demolition are set out below:

- Essential Standards - Minimise, reuse and recycle demolition waste and specify use of reused or recycled construction materials.

- Mayor's Preferred Standards - Use prefabricated and standardised modulation components to minimise waste. If this is not feasible, use low waste fabrication techniques.

6.2.10 In regards to demolition and construction, the proposed development will comply with the London Plan SPG on Sustainable Design and Construction (May 2006) Essential Standards (as defined above) and go as far as possible to meeting the Preferred Standards.

Best Practice Guidance on Control of Dust and Emissions from Construction and Demolition (November 2006) [(6.7)]

6.2.11 Following the commitment within the Mayor's Air Quality Strategy, the GLA and London Councils have produced this best practice guidance. The overarching aim of the Guidance is to protect the health of on-site workers and the public and to provide London-wide consistency for developers. It has been developed to assist architects, environmental consultants, developers, local authority officers and any parties involved in the construction process. One specific recommendation is to seek to lower exhaust emissions from off-road construction vehicles and plant used on major sites wherever possible.

Local Policy

LB Ealing's Plan for the Environment (saved policies, October 2007) [(6.8)]

6.2.12 The London Borough of Ealing adopted its 'Plan for the Environment' in October 2004. The Plan for the Environment, officially known as the Replacement Unitary Development Plan (UDP), sets out the Council's intentions for land and development from 2002 to 2017.

6.2.13 The following extracts identify relevant sections within the Replacement UDP offering recommendations and practices to be adopted by construction schemes. This only includes 'saved policies' following the Secretary of State's Direction with others having expired in October 2007.

6.2.14 Chapter 2 of the Replacement UDP: Environmental Resources and Waste, contains a number of sections in reference to construction practices. Section 2.3: Land - Mineral Development, states that "*The Council strongly supports government advice on the need to increase the rate of construction waste recycling*".

6.2.15 Section 2.10: Waste Minimisation and Management (Building Materials and Demolition) states that "*The waste hierarchy set out in PPG 10, RPG 9 and the National Waste Strategy 2000 emphasises the re-use or recycling of materials (including those for construction), in preference to disposal. The recycling of building materials is now increasingly viable, due to escalating costs of minerals extraction, manufacturing and distribution. The Council therefore seeks the maximum use of recycled and reused materials from on-site demolition or local demolition sites - such as hardcore recycled*

from crushed material, bricks or timber which are salvaged for reuse, and other more innovatory building elements".

Draft Supplementary Planning Guidance 3: Air Quality and Pollution [6.9]

6.2.16 Draft SPG 3 advises that the following procedures be followed to minimise air quality issues arising during construction activities:

"*All construction projects will be subject to codes of practice designed to minimise the impact of emissions to air. Control of construction dust should be proportionate to the scale of the potential impacts and relevant to the circumstances of each construction site. Generally, dust can be controlled by: good management practice; proper handling and storage of dusty materials; regular sweeping and cleaning of areas and roads; sheeting, enclosure or covering dusty materials, HGV's and dust generating activities; wind sheeting; wetting down activities which generate significant emissions of dust; siting dust generating materials and activities away from sensitive receiver locations and the use of plant with dust arrestment equipment. For large construction sites, assessment and monitoring of dust levels may be appropriate. The scheme should also include those measures which will be put in place to supervise the works so that all steps are taken to minimise the emission of dust*".

6.2.17 In addition to the above policies, careful consideration of the Construction (Design Management) Regulations 2007 [6.10] will also be required at both the design and construction stage.

6.2.18 Details of National, Regional and Local Policy guidance relating to specific construction impacts are outlined in Chapter 9: Noise and Vibration; Chapter 10: Air Quality; Chapter 12: Ground Conditions; Chapter 14: Ecology; Chapter 13: The Water Environment; and, Chapter 17: Operational Waste of this ES.

6.3 Construction Activity and Programme

Phasing Proposals

6.3.1 The construction of the Scheme is proposed to be undertaken over 13 phases plus two overlapping phases of remediation over a period of approximately 15 years from 2009/2010 to an estimated completion date in 2024/2025. Figure 6.1 indicates the likely sequence of development which is also described below. The construction phases have been split into 3 five year intervals, however, these are approximate and subject to market forces present during this time span. Overall, construction on-site moves approximately westwards over the 15 year period, commencing in the northeast and completing in the far west, with the exception of the access routes which are to be constructed/upgraded as required to facilitate access for both construction areas and new residents and businesses.

6.3.2 Table 6.1 presents the phasing programme as it presently stands including a summary of key activities during different phases. Numbers of residential units quoted below are approximate.

Table 6.1 Indicative Phasing Programme

Years	Phase	Development on-site
Years 2010 to 2015	Remediation of the northern area of the Site, demolition of the western gasholder plus the Pump Lane Bridge and Eastern Access will be undertaken first, followed by the construction phases described below:	
	Phase 1	Construction of residential component (192 units) along the northern site boundary plus the Energy Centre and some limited retail development. The spine road across the Site and the Pump Lane Bridge will be constructed to facilitate this Site development and access.
	Phase 2	Construction of further residential units (82 units) in the northeastern area of the Site plus the cinema and further limited retail units.

Years	Phase	Development on-site
	Phase 3	Construction of residential units in the northernmost area of the site (370 units) and works to facilitate access routes into the Site including the widening of the South Road Bridge and the Hayes Bypass Junction improvement to the west of the Site.
	Phase 4	Construction of more of the residential component (180 units), the town square and retail units in the north of the Site plus construction of the Springfield Road Foot/Cycle Bridge from the north. Improvements to Junction 3 of the M4 will also be undertaken during this phase.
Years 2015 to 2020	Remediation of the remainder of the Site ('Remediation West') will be undertaken at the start of this five year period around the time of Phases 6 to 7. Construction Phases 5 to 9 are planned for the years 2015 to 2025 and are outlined below:	
	Phase 5	Construction in this phase includes residential units (283 units), food, retail, studio units and parking in the eastern area of the Site. A temporary nursery will also be constructed in the southern area of this phase of works. Further works to complete the spine road will be undertaken plus off-site works on Bulls Bridge.
	Phase 6	Construction of residential development (395 units) and the hotel in the north of the Site to the east of the National Grid retained land.
	Phase 7	This phase of construction includes a large section of land in the central area of the Site and is for development of school, health centre, residential component (390 units) and the park.
	Phase 8	Construction in this phase is of the Minet Park Bridge and the land adjacent to its landing on-site which will incorporate 303 residential units.
	Phase 9	Construction of 430 residential units in the central area of the site adjacent to the spine road.
Years 2020 to 2025	The final 5 years of construction include development phases 10 to 13 with completion of the Scheme, estimated for 2025. These final five years incorporate the remainder of the residential component on the Site and the development of the western area as outlined below:	
	Phase 10	Construction of 200 residential units
	Phase 11	Construction of 297 residential units
	Phase 12	Construction of 249 residential units
	Phase 13	Construction of 122 residential units in the far west point of the Site.

Construction Activities

Main Site

6.3.3 By necessity, the construction stage for the Main Site will consist of distinct work phases; the remediation and certain associated infrastructure in two phases, and the construction in up to 13 phases, as indicated on Figure 6.1. The nature of these separate works is described below:

Remediation

6.3.4 Remediation of the Main Site is programmed for two Phases/Stages (North and West), each taking place ahead of the completion of the infrastructure, substructure and superstructure construction in those areas, but taking primary development requirements into account. The Remediation Strategy is summarised within Chapter 12: Ground Conditions. Primarily, the strategy broadly encompasses in-situ treatment, however, by necessity some off-site removal of the most contaminated or 'difficult' soils will be required in areas assessed to require remediation. The works will also include removal, as necessary, or treatment of certain foundations and below ground structures able to retain soils and liquids associated with the former gas works and other industrial structures which existed on the Site including the decommissioned western gasholders (as described below).

6.3.5 It is envisaged that, in direct response to the identified contaminant profile, there will be minimal import or export of material related to primary earthworks activities. This is because material will be treated on-site and re-used as much as possible. It is acknowledged; however, that a net import of material is required to facilitate construction, for example, for the embankments for the Pump Lane Bridge.

Gasholder demolition

6.3.6 The demolition of the two western gasholders is programmed to take place during the first phase of remediation (North Area). Access to the Site for movement of materials to facilitate this demolition will be via the Pump Lane access (as indicated on Fig 6.3 and described in Section 6.3.15). Activities involved in the demolition of the gasholder are described below:

- The isolation of gasholder pipe work and divert/re-route of primary services, the purging the holder bell, pipe work, gas flow control equipment and ancillary items to be completed and certified.

- Removal of the contained gasholder base sealing water which involves:

    - Water analysis and disposal including sampling and testing the water and obtaining agreement from Thames Water Utilities for discharge via interceptors/separators to the public waste water system.

    - If water is unsuitable for discharge, it will undergo treatment to elevate the quality to an acceptable standard.

    - Dewatering methods to minimise disturbance of the underlying basal sludges.

    - De-watering can take from 4 to 12 weeks or even longer depending upon the scale of operation and restrictions imposed by statutory regulation.

- Removal of the gasholder sludge

    - A layer of residual sludge is anticipated at the bottom of the holder base and it will be sampled and analysed for safe removal and eventual disposal off site.

- Demolition of the main structure

Main Site Construction

6.3.7 The anticipated programme for the development of the Main Site is approximately 15 years. Remediation, construction of infrastructure and construction of substructures and superstructures will be phased. It is expected that remediation taking place in the 'North' will be completed within 12-18 months. Remediation in the 'West' will be completed within 18-24 months, and the construction of infrastructure, sub-structures and super-structures is anticipated to commence from Month 9. It should be noted that project characteristics and market conditions at the time of construction of each phase may influence on the overall sequence and construction programme. Nevertheless, for the purpose of this ES, the construction programme set out in Table 6.1 and Figure 6.1 is taken as the 'likely' outcome and represents a logical sequence of works.

6.3.8 The very initial and limited construction access to the Site will be from the existing Eastern (South Road) Access, but as soon as is practicable, this will be transferred to Pump Lane Bridge as its construction progresses. Thereafter, the construction traffic access to the Main Site will be via the Pump Lane Bridge and during all subsequent phases of development.

6.3.9 Considering the likely progressive steps for each phase of construction for the Main Site, it is envisaged that this will be carried out in eleven stages as detailed in Table 6.2 below.

Table 6.2 Stages of Construction of the Main Site

Stage	Activity
1	Establishment of the appropriate Main Site compound and ancillary services and logistics.
2	Site clearance of vegetation etc (where appropriate).
3	Unexploded ordnance risk clarification survey at the locations of proposed intrusive construction works followed by primary remediation works.
4	Increased clarification of ground conditions to the specific finalised requirements of proposed structures. Should the outcome of this stage indicate unacceptable risk in respect of contaminated materials, these will be remediated prior to the following stages.
5	Establishment of materials delivery and placement logistics at key locations within the Site.
6	Use of site materials including any importation, if required to achieve proposed formation levels. It is envisaged that construction of Access Roads will commence on completion of this Stage.
7	Removal of near surface obstructions (as required) enabling construction of piled foundations or effective ground improvement works.
8	Construction of piling mats at formation levels over structural footprints to facilitate safe operation of heavy construction plant.
9	Pre-drilling (as required) of deep foundation structures to facilitate subsequent piling operations where needed to avoid mass removal.
10	Pile or ground improvement construction of type and diameter appropriate to superstructure and active loads.
11	Construction of superstructures and ancillary infrastructure.

Substructure Construction

6.3.10 Substructure works will be required for permanent structures, in order for them to be supported on suitably developed piles or deep foundation support structures, due to the poor ground conditions anticipated within the upper Made Ground and alluvial strata. Where lighter structures are proposed, the geotechnical properties of these uppermost strata may be improved by adopting ground improvement methodologies which enable foundation construction to be completed near surface.

6.3.11 The removal and disposal of ground or groundwater emanating from excavations, which is unsuitable for treatment, will be undertaken in accordance with the requirements of the Environment Agency.

Eastern Access (South Road)

6.3.12 A rising access road is required to abut to the west of the north end of the existing South Road to provide access to the eastern part of the Site. This follows demolition of houses in The Crescent and Randolph Road and area preparation. This will happen in the first phase of development. The bridge itself will be widened in the third phase by extending new support structures westwards on the line of existing ones, allowing new spans to be created parallel to, but not loading, the existing arch/steel bridge. A retaining wall is required to support the rising access road. The close proximity of the proposed structure to the existing railway will necessitate close liaison with Network Rail and their agents regarding the detailed design of the bridge, the construction methodologies and the programme to be adopted. There will also be requirements for road closures affecting South Road but this is unlikely to be a total closure other than during rail possessions. A temporary two lane carriageway will be constructed during the widening for the vast majority of the time and will require only relatively infrequent and short periods of one way traffic.

6.3.13 It is envisaged that the construction of the South Road Bridge Widening will proceed in five stages as detailed below in Table 6.3. The proposed widening is illustrated in Figure 6.2.

Table 6.3 Stages of Construction for the Eastern Access

Stage	Activity
1	Establishment of the site compound west of South Road and north of Southall Station, subject to agreement, in a cleared zone.
2	Confirmation of ground conditions along the proposed route of the road widening and its supporting construction corridor and detailed confirmation of the structure of the existing road bridge. Build out of the access road.
3	Road closure and building of new support structure taking into account the operational rail infrastructure to be agreed in advance with Network Rail.
4	Full possession of the rail infrastructure required for construction and completion of the new span and deck as agreed in Stage 3.
5	Construction of new bridge decking with associated services and drainage.

Pump Lane Bridge

6.3.14 With reference to the construction phasing programme, it is envisaged that the construction of the Pump Lane Bridge will proceed in eight stages, as detailed below in Table 6.4 and illustrated in Figure 6.3.

Table 6.4 Stages of Construction for the Pump Lane Bridge

Stage	Activity
1	Establishment of the site compound adjacent to Pump Lane and below the Hayes Bypass out of the flood plain zone.
2	Site clearance of vegetation and confirmation of ground conditions along the proposed route of the road and its supporting construction corridor, mindful of ecological mitigation aspects including bird nesting season and with the provision of wildlife exclusion fencing.
3	Excavation of compensatory flood storage area. Re-use material in embankment if suitable. Remove compensatory storage area haul road.
4	Establishment of materials delivery and placement logistics at key locations along the route of the construction corridor. The development of these compounds will reflect the need to protect against flood risk by careful location, construction and management.
5	Construction of permanent bridge structures with piled support and completion of the river diversion channel and associated works.
6	Importation and use of materials for construction of the remaining embankment under a strict construction method statement.
7	Construction of the road, drainage, services and associated features.
8	Landscaping of the embankment channel and disturbed areas and monitoring of ecological considerations.

6.3.15 The programme for the bridge works is anticipated to take 15 – 18 months. It should be noted however, that project characteristics and market conditions at the time of construction may require variation of the overall sequence and construction programme and a flexible 'best overall value' approach.

6.3.16 The chosen Contractors will be selected in full consideration of them being able to achieve the requirements set out in the Environmental Statement, Planning Conditions and other contractual environmental requirements.

6.3.17 It is anticipated that temporary construction access will be taken from the current Pump Lane (off the Hayes Bypass) and directed onto a haul road running initially adjacent to the southern line of the proposed permanent road, then passing north for the compensatory storage area and Canal crossing works (see Figure 6.3).

Springfield Road Bridge

6.3.18 The Springfield Road Bridge is to be constructed during approximately the fourth year of the development programme, in order to facilitate pedestrian and cycle access to the Site. This link will comprise two spans carrying a foot/cycle deck to cross both the Yeading Brook and the Grand Union Canal. It will be constructed on three sets of piled foundations.

6.3.19 It is envisaged that the construction work for the bridge will require access from the north (Springfield Road) and, during construction of the southernmost bridge pier and steel span crane erection, access will be required from the Main Site. Access will also be required for light construction plant (e.g. mini-pile rig) to the land between Yeading Brook and the Grand Union Canal to construct the single central bridge footing pier.

6.3.20 It is envisaged that the construction of the Springfield Road Bridge will proceed in seven stages as detailed below in Table 6.5 and illustrated in Figure 6.4.

Table 6.5 Stages of Construction for the Springfield Road Bridge

Stage	Activity
1	Establishment of the Site compound outside the flood plain and east of Yeading Football Ground, construction of temporary river bridge (if equipment cannot be craned in), establishment of a small site compound/material storage area between Yeading Brook and Grand Union Canal and establishment of a site material storage area within the Main Site and next to Yeading FC.
2	Site clearance of vegetation in minimised zones, retaining trees for re-use where practical. Detailed clarification of ground conditions for pile design along the proposed route of the bridge and approach roads and its supporting construction corridor and at bridge pier locations.
3	Emplacement of temporary river training bunds to protect works area but in full consideration of flood risk aspects. Should the outcome of Stage 2 indicate unacceptable risk in respect of contaminated materials (not expected) these will be remediated (principally by removal and replacement) within Stage 3 and 4.
4	Establishment of materials delivery and placement logistics at key locations on the Site. The development of these compounds will reflect the need to protect against flood risk as well as engineering considerations for the emplacement of the permanent river crossings through EA approved Construction Method Statement.
5	Construction of permanent bridge structures, after their offsite assembly, by full span craneage onto prepared piled supports.
6	Importation and use of materials for construction of the minor access embankments.
7	Construction of the deck, drainage, services and associated features.

Minet Park Bridge

6.3.21 The Minet Park Bridge, as for the Springfield Road Bridge, is considered to create minimal environmental impact due to having a small footprint. The bridge will be light in construction and used for carrying pedestrians and cycle traffic only.

6.3.22 It will be constructed primarily from structural steel and will consist of two spans, one each to cross the Grand Union Canal and the Yeading Brook. The two spans will be formed by pre-made steel sections craned directly onto prepared footings. The spans will be straight in themselves but kinked at mid-point and will carry both a footway and a cycleway. The balustrades will be 1.4 metres high.

6.3.23 It is envisaged that commencement of construction for the Minet Park Bridge will take place during the eighth phase of development and will be carried out as detailed in Table 6.6 and illustrated by Figure 6.5.

Table 6.6 Stages of Construction for Minet Country Park Bridge

Stage	Activity
1	Establishment of a site compound on the Main Site close to the proposed bridge location with a further compound within the Minet Country Park outside the flood plain area, subject to agreement.
2	Site clearance of vegetation and confirmation of ground conditions within the area of the proposed supporting central pier mindful of seasonal ecological constraints.
3	Establishment of temporary bridge linking the Park compound to the river/canal corridor of land and its temporary work zone, if the equipment for the central pier cannot be craned in.
4	Establishment of materials delivery and placement logistics at key location along the route of the construction corridor. The development of this compound will reflect the need to protect against flood risk as well as engineering considerations for the emplacement of the permanent river crossings.
5	Construction of permanent bridge spans craned directly onto piled supports.
6	Construction of the deck etc of the foot/cycle carriageway.

6.4 Construction Assessment Methodology

6.4.1 The assessment of the construction impacts is based upon typical construction processes likely to be employed on the Site. The quantity and duration of each construction activity has been estimated on the basis of the most likely construction processes and the required mitigation and control measures have been developed on the basis of that assessment. This chapter sets the context for other technical assessment chapters, rather than presenting an assessment of individual construction impacts (such as noise, air quality, contamination, etc) which are dealt with in the respective chapters.

6.4.2 When the detailed scheme for each construction phase has been designed and the detailed programme of works is more definitive, specific mitigation measures within the parameters identified in this ES will be developed and agreed at the reserved matters application stage. These will also be incorporated into the Health and Safety Plan and/or Construction Environmental Management Plan (CEMP) (see paragraph 6.6) and obligations will be imposed on the all contractors and site personnel to ensure that the mitigation measures are observed and enforced by the Principal Contractor.

6.4.3 No definitive guidance is available on how to assess construction effects. Reference has been made however, to the Highways Agency's DMRB Guidelines which define how 'Disruption due to Construction' [6.11] should be assessed. This guidance is provided for road and bridge developments but provides a framework that can be adapted for other types of developments.

Study Area

6.4.4 An area of 100m of the Site has been considered for assessment which is in line with the DMRB Guidelines. Where appropriate, this area is extended to consider the likely effects on other properties and resources which have been considered due to their particular sensitivity to construction activities.

6.5 Assessment of Effects

6.5.1 Remediation and construction works on-site have the potential to impact upon a wide range of environmental aspects including: air quality (through dust, plant and traffic emissions); noise and vibration (e.g. demolition, drilling, construction traffic); ecology (removal of habitats, displacement of flora and fauna); archaeology (destruction of sub-surface remains); ground conditions (removal/treatment of contamination, creation of pollutant pathways); water environment (construction wastes in watercourses, pathways into the aquifer); and, impacts on the landscape

associated with changing views of the Site. Some of these impacts are short-lived and temporary in nature (i.e. for the duration of the construction works only) and others may have a more significant and lasting effect if appropriate mitigation is not in place to prevent such effects manifesting as a permanent change to the receiving environment.

6.5.2 Impacts during the construction phase on all these environmental aspects are discussed in greater detail within the relevant chapters of this ES and not repeated here, although general methods to be employed during construction to mitigate such impacts are discussed in Section 6.6.

6.5.3 The impact of construction wastes are considered within this chapter although their influence upon the water, soil and atmospheric local environment are also considered within the relevant chapters. Waste generated by the Scheme once built out is considered separately in Chapter 17: Operational Waste.

6.5.4 The disposal of waste materials produced during construction operations will have an impact on the disposal infrastructure and landfill void space, although the quantities of waste will be relatively small in comparison with quantities of waste materials dealt with by the West London Waste Authority (WLWA - a partnership of six London Councils including LB Ealing).

Gasholder Demolition

6.5.5 Several potential environmental impacts have been identified associated with the demolition of the gasholders. These are listed below:

- Noise impacts on local residents and other sensitive receptors (e.g. schools, churches etc) from cutting steel work and the use of pumps overnight.
- Impacts of discharging waste waters from site (including sealing waters from gasholders).
- Traffic impacts associated with removal of spoil and waste materials from site.
- Potential for ecological considerations (e.g. nesting birds).
- Odours from holder, dewatering and from removal of slurry residues from base of holder.

Without mitigation, the effects from the demolition of the gasholder on the surrounding environment and residents have the potential to cause a **moderate adverse** effect.

Remediation Wastes

6.5.6 The most environmentally significant waste arising from the construction operations is likely to be the small untreatable element of the contaminated soil from the former gas works. Whilst the Remediation Strategy embraces maximum reuse of soil on site following treatment, in line with the waste hierarchy, any untreatable contaminated soil will require specialist handling and disposal. It is estimated that the volume of soils that will require off-site disposal is in the order of 30,000m^3 following treatment compared to recycling of up to 150,000m^3 on site. Since 30 October 2007, contaminated land going to landfill as 'inert' or 'non-hazardous' waste requires pre-treatment in order to comply with the Landfill Regulations [(6.12)]. Legislation governing the treatment and disposal of contaminated land is discussed in more detail in Chapter 12: Ground Conditions.

6.5.7 The impact of the generation of wastes during the remediation works is considered to result in a **moderate adverse** effect on the basis that the majority of wastes are to be treated, made safe and retained on-site for re-use. The disposal of the smaller untreatable/unusable portion of remediation wastes has the potential, at least theoretically, to have a greater impact if its disposal is not subject

to the appropriate controls. However, such disposal is governed by strict legal requirements (refer to Section 6.6 for mitigation measures).

Construction Wastes

6.5.8 The waste which will arise from construction operations is difficult to predict, but it is likely to be small relative to both the annual tonnage of commercial and industrial waste being handled by the WLWA. Waste generated as a result of site preparation and during construction will require disposal off-site, although only after maximising re-use/recycling opportunities. Predictions for the volumes and mass of waste likely to be generated during construction of the Scheme have been made based on experience and data available from LB Ealing.

6.5.9 It is anticipated that the volume of waste generated during the construction phase of the development will comprise approximately 3% of the materials brought onto Site based on Environment Agency (EA) figures [6.13]. Improvements to the existing road network will also give rise to construction wastes. Of note, there are no substantial above ground structures to be demolished and removed prior to construction with the exception of the gasholder superstructure, as described above, so this waste stream will be very limited.

6.5.10 During the Main Site construction phase, waste products would be generated as a result of domestic type consumption by site operatives (office type waste products) and industrial process waste by-products (e.g. untreatable contaminated soils or cooling waters from drilling). The former waste source is likely to be of a limited volume and therefore represent a **negligible adverse** effect, whilst the latter has the potential for a **minor to moderate adverse** effect based principally on the volume of material generated.

6.5.11 The remaining construction waste materials will include packaging materials (card, plastic, paper, wood) and inert materials, such as concrete, brickwork, ceramics, rubble and glass.

6.5.12 Waste materials arising from the construction of the Pump Lane Bridge, the Eastern Access and the Springfield Road and Minet Park Bridges would consist of soils arising from the limited excavation of the bridge foundations. Where possible, and subject to appropriate assessment, these materials would be re-used in the landscaping of the Main Site or to build up the embankments to the landing points of the bridges. Volumes of material would therefore be limited and are considered to pose a **local adverse minor adverse effects (at worst)** for each of the proposed access routes.

6.6 Mitigation and Enhancement

The Health and Safety Plan, Construction Method Statements and Environmental Management Plan

6.6.1 Construction will be undertaken in accordance with the relevant British Standard Codes of Practice, as well as established construction industry best practice.

6.6.2 For each phase, a strategic and co-ordinated approach to the development of the project is required to ensure that the environmental impacts are minimised. This approach will initially require the design team, through the appointed Planning Supervisor, to prepare a Health and Safety Plan (Design Stage) as part of their duties under the CDM Regulations 1994. The Principal Contractor will then prepare the Health and Safety Plan for the Construction Stage, using the Design Stage Plan, which will include extensive method statements dealing with areas of potential risk. The requirement for method statements will continue throughout construction and will be actioned as necessary by the Principal Contractor and his Sub-Contractors.

6.6.3 A project-wide Construction Environmental Management Plan (CEMP) will also be drawn-up as a tool for managing and monitoring environmental effects and to ensure the effective implementation of

the various mitigation measures identified through the EIA process and any subsequent assessment stages. A draft CEMP has been prepared and is included with this ES at Appendix (6.1).

6.6.4 In summary, the principal means of reducing the environmental impact of the construction processes will be by detailed construction method statements and site-wide procedures which will be included within a Health and Safety Plan, CEMP, or equivalent environmental management system.

6.6.5 Once finalised, the CEMP and Health and Safety Plans (Construction Stage), will be forwarded to LB Ealing and LB Hillingdon, and consulted upon with the relevant regulatory bodies prior to commencement of the works. The Plans will comply to the CDM Regulations and will include the following:

- a broad plan of the phasing of the works;
- prohibited or restricted operations such as locations, hours, construction traffic routing etc;
- proposals for monitoring and record-keeping of relevant data and analysis to comply with the key environmental conditions in the planning permission (e.g. noise and dust monitoring, findings of contamination surveys and analysis);
- confirmation of the mechanism for the public to register complaints and the procedures for responding to complaints;
- provisions for reporting, public liaison, prior notification etc;
- identification of risks to site personnel, the general public and future site users;
- details of construction operations, highlighting operations likely to result in disturbance and/or working outside the core working period, with an indication of the expected duration of each phase and key dates; and
- Construction Method Statements for particular phases or activities.

6.6.6 The Site is crossed by a number of low, intermediate and high pressure gas distribution pipes which each have maintenance and 'no build' easements. The easements are designed to provide both a protective buffer and an access corridor within which works are restricted to prevent damage to the pipes and to allow for ongoing maintenance. High pressure gas mains carry the most prescriptive easement requirements, necessitating supervision by National Grid Gas. This may include any temporary works within the easement and agreement in advance for the location and type of permanent works.

6.6.7 It should be noted that such low, medium and high pressure pipes are located throughout many urban environments and, whilst the number of pipes is likely to be more than average, their presence is not an unusual occurrence and the methods of protecting such infrastructure are well rehearsed.

6.6.8 It will be necessary for subsurface works to be undertaken to facilitate the successful completion of both the remediation and the construction phases. Close liaison will be undertaken with National Grid Gas to ensure that their distribution pipe-work is appropriately protected from potential damage or disturbance arising from these works. The specific methodologies for this protection will be agreed by the Principal Contractor and National Grid Gas at the pre-construction stage. However, as a minimum, they will be expected to work with reference to the following Health and Safety Executive and National Grid guidance documents:

- HS(G)47[(6.14)]: Avoiding danger from underground services;

- IGE/SR/18 [6.15]: Safe working practices to ensure the integrity of gas pipelines and associated installations; and

6.6.9 Only following the effective agreement of National Grid Gas (and any other relevant bodies) will work be permitted within the easements.

6.6.10 Furthermore, given the historical use of the Site, the possibility of excavating abandoned gas pipes is high, possibly with trace residues. A strict procedure of 'find, safe assessment and abandonment' will apply to these.

6.6.11 The Health and Safety Plans (Construction Stage) and CEMP will include details of construction proposals, demonstrating the provisions for environmental protection. This approach is consistent with that adopted for other major schemes in urban areas, including the remediation and redevelopment of former gas works sites.

6.6.12 A number of characteristics of the development and the Site are relevant in assessing the likely significant environmental impacts of the construction phase. As identified in Chapter 3: Site and Proposed Development, two main sensitive ecological receptors (Yeading brook/GUC and Minet Country Park) will be crossed by the Proposed Access Routes. The integrity and quality of these sensitive receptors are at potential risk of being compromised by the construction and operational activities without appropriate environmental controls and procedures in place to avoid, reduce or off-set such effects. Control of works through the enforcement of protective working practices will mitigate the risks posed, alongside reactive strategies to further protect the receptors from accidental impact. These are discussed further in Chapter 14: Ecology and other chapters of this ES.

6.6.13 General construction mitigation measures are described in the following sub-sections.

Gasholder demolition

6.6.14 Mitigation of the identified potential effects resulting from demolition of the gasholders will include:

- Liaison with local residents and businesses.
- Restrictions on timing, location and procedures for certain operations on site.
- Provision of protective barriers, fencing and equipment.
- Traffic management measures.
- Ecology – pre-construction check of the existing survey.
- Environmental monitoring.
- Complaints procedure and remedial action plan.

6.6.15 A specific Environmental Management Plan will be prepared, in line with National Grid's procedures, for the gasholder demolition. This existing EMP protocal focuses on the identified environmental aspects and impacts associated with the site and the planned project and specifies the mitigation and monitoring actions required of contractors to ensure that these impacts are controlled and reduced as much as is practicable.

Vehicle Movements and Logistics

6.6.16 The construction of the roads and new site access bridges will generate impacts relating to the movement of traffic and plant. Associated impacts include noise, marginally reduced air quality and vibration. Provision will be made by the Principal Contractor to ensure that the effects of the impacts will be minimised in line with the developed Construction Method Statements and CEMP. The construction of the Pump lane Bridge and associated infrastructure will be the subject of an Ecological Mitigation Strategy, the principles of which have already been agreed with the Environment Agency.

Soiled Roads

6.6.17 The Principal Contractor will take measures to include the following mitigation measures:

- The provision of effective wheel washing facilities at site exits, where necessary;
- The use of bowser-mounted sprinklers to damp down areas of potential dust generation;
- Hard standing to be formed on all regular on-site traffic routes; and
- The use of a suitable means to clean all highways in the vicinity of the Site from any site generated matter. The road sweeper is to be readily available whenever the need for cleaning arises.

Site Employment

6.6.18 Whilst it is envisaged that the main construction process will utilise permanent employees of the Principal Contractor, there will be some provision for temporary labour (e.g. security) to be sourced from the local area. The potential Full Time Equivalent (FTE) jobs created during the construction, as well as other benefits to the local economy during this phase, are considered in Chapter 7: Socio-Economics.

Hours of Working

6.6.19 It is assumed that the working hours for remediation and construction will generally be limited by planning conditions to a regime of:

- Weekdays 0700 - 1900 hours
- Saturday 0700 - 1300 hours

6.6.20 Any work which is necessary to be undertaken outside these hours will be subject to prior agreement/approval of the LB Ealing and/or LB Hillingdon. Night-time (2300 - 0700) working will not normally be permitted and it is accepted that separate noise and disturbance assessments would be required in the event of an application for working outside of the normal core hours (e.g. for delivery of abnormal loads)

Contract Conditions

6.6.21 Individual trade contracts will incorporate relevant requirements in respect of environmental controls, based largely on the standard of 'good working practice' outlined in the CEMP and Construction Method Statement prepared by the Principal Contractor. Sub-contractors will be required to

demonstrate how they will achieve the provisions of the CEMP and other contractual requirements before their appointment.

Management of Construction Works

6.6.22 A designated liaison officer will deal with complaints and inquiries whether they arise via the Council or directly from residents or other occupiers in the area. The liaison officer will be named at the site entrance(s), with a contact number, and will be identified to the Local Authority and community groups, prior to the start of construction, and whenever a change of responsibility occurs.

Response to Breaches/Complaints

6.6.23 Complaints will be logged on-site and reported to the relevant department of the Local Authority (and vice versa) as soon as practicable. A record will also be maintained of actions taken in response to such complaints.

6.6.24 The Health and Safety Plan and CEMP will specify the roles and responsibilities of the Principal Contractor's liaison officer, and the Local Authority in respect of complaints from the public. The required actions will be different in each specific case depending on the issue concerned, but would commonly include monitoring or investigating the complaint and, if shown to be founded, altering of the particular operation, equipment or location causing the problem, or applying extra controls (e.g. screening).

Community Liaison

6.6.25 The Principal Contractor assisted by consultants will organise liaison group meetings together with reports and leaflet drops, which will provide information at key stages of development to interested parties. Openness will be encouraged in order to share problems and discuss and establish appropriate solutions.

Prior Notice

6.6.26 In the event of unusual activities or events that can be anticipated, these will be notified to the Local Authority and to relevant property owners or occupiers, wherever possible in advance of the activity. The relevant activities and receptor properties which are likely to be affected by such activities will be determined in consultation with the Local Authority once the detailed programme of each construction phase is defined. The relevant activities to be discussed in this way will include:

- Commencement of remediation/construction in certain areas and demolition of the gasholders;
- Necessary night-time, weekend or evening working (outside core hours) of a type which may affect properties/neighbours;
- Road or footpath closures/diversions; and
- Work on or affecting land used by others.

Control of Dust and Air Quality

6.6.27 The Principal Contractor will ensure that any activities associated with the construction that may have a negative effect on air quality (i.e. vehicle emissions and dust) will be monitored and mitigation measures employed to reduce the impact to acceptable levels. More details of these mitigation measures are contained in Chapter 10: Air Quality.

6.6.28 Provisions for dust control will include the following:

- Vehicle wheel/body washing facilities to be provided and used as necessary;
- Vehicles carrying waste material off-site are to be sheeted;
- The use of hoardings and debris screens to minimise the potential for any horizontal migration of dust;
- Careful location of remediation beds and stockpiles away from sensitive off-site receptors, where practical;
- Sheeting of spoil heaps or spraying with water, as necessary; and
- If complaints arise or incidents of dust deposition occur, these will be investigated immediately and action taken.

Control of Smoke/Odour/Pollution

6.6.29 Pollutants generated by plant and the construction activities will be controlled by acceptable operating procedures, local authority requirements and the use of efficient plant. No fires will be permitted. Odour producing construction activities will be minimised and restricted during sensitive periods.

Control of Site Drainage

6.6.30 The assessment of the potential effects of the development proposals on water resources is presented in Chapter 13: The Water Environment. Discharge arrangements will be agreed with the Environment Agency.

6.6.31 The Principal Contractor will ensure that any water, which may have come into contact with contaminated materials, will be disposed of in accordance with the Water Resources Act (1991) [16.16] and other legislation, and to the satisfaction of the EA.

6.6.32 All liquids and solids of a potentially hazardous nature, (e.g. diesel fuel, oils, solvents) will be stored on surfaced areas, with bunding, to the satisfaction of the Local Planning Authority and the Environment Agency. Construction vehicle parking areas may require paving with temporary drainage and silt interceptors.

Noise

6.6.33 The Principal Contractor will ensure that any construction activities that may have a negative effect on noise or vibration levels will be monitored and mitigation measures employed to reduce the impact to acceptable levels (reference should also be made to Chapter 9: Noise and Vibration).

6.6.34 Provisions for noise control will include the following:

- Use of modern noise-attenuated plant;
- The avoidance, wherever practicable, of any inherently noisy construction operations by utilisation of alternative methods (e.g. use of augered as opposed to driven piles);

- Provision of insulation to static pumps and generators;
- The maximum practical utilisation of pre-assembled construction components;
- Utilising low impact techniques, such as hydraulic-operated splitters or jaw-crushers for grubbing out of foundations and any mass concrete structures beneath the surface of the Site;
- Using electrically powered equipment run from the mains supply, or when this is not available, 'super silent' generators;
- Use of drills and screws rather than nails for fixing panels on-site;
- Avoidance of unnecessary noise (such as engines idling between operations, shouting, loud radios or excessive revving of engines) by effective site management, and;
- The distance between noise and vibration sources and sensitive neighbours should be maximised and the sound path obstructed, where practical by:
    - Considerate siting of stationary plant and loading/unloading areas;
    - Erecting impervious hoardings, of at least 5 kg/m^2 surface density, where possible higher than the line of sight to neighbours; and
    - The use of temporary structures or earth mounds.

Ground Investigation

6.6.35 A comprehensive contaminated land investigation and outline geotechnical characterisation study has been completed and is reported on in Chapter 12: Ground Conditions. For each phase of development, a more detailed building or zone-specific intrusive investigation will be conducted. These investigations will be undertaken to confirm ground conditions prior to the completion of the detailed structure design. However, sufficient investigations have been undertaken to-date to determine the likely environmental effects of the remediation and construction works. Subsequent reports will make appropriate detailed recommendations in consultation with LB Ealing, LB Hillingdon, British Waterways (and other appropriate landowners), and the EA regarding measures for safe working practices and the disposal of contaminated materials should they be discovered. A Foundations Options Report will also be prepared.

Flooding Risk during Construction

6.6.36 Activities will be undertaken cognisant of the flood risk posed by the Yeading Brook. The Principal Contractor will ensure that plant and equipment are stored in compounds constructed above the level of the potential flood impact zone wherever possible. In addition, all activities will be undertaken in strict accordance with the Construction Environmental Management Plan (CEMP) to cater for monitoring and action in high risk weather events. Relevant procedures will be agreed with the Environmental Agency. Flood compensatory zones are to be excavated as part of the permanent works and will be constructed as soon as practical in the phase in which construction is to take place in relevant areas.

Construction Waste

6.6.37 During construction, management of all waste will be carried out in compliance with DTI (now DBERR) 'Site Waste Management Plans (2004) [6.17] and CIRIA 'Waste Minimisation in Construction

- Site Guide' (1997) [6.18]. All waste materials will be stored in designated areas and be kept clear of the surface water drainage system.

6.6.38 Site Waste Management Plans are likely to be a planning requirement in any case.

Waste Reduction and Reuse

6.6.39 The generation of construction waste will, as the first priority, be avoided. Any packaging used for transporting of construction materials delivered to Site will be sent back with the delivery vehicle whenever practicable. If waste is generated on-site, it will be sent for reuse and recovery, in preference to disposal, whenever practicable and economically viable. This is likely to involve processes to produce secondary aggregates in line with current guidance. Where practical, spoil, demolition materials, prunings and surplus construction material or clean concrete arising from the works on Site will be reused within the landscaping zones and for backfilling of excavations. Any suitable stone found on-site may be crushed and used as capping material for roads and buildings.

Waste Recycling

6.6.40 Any waste generated on Site will be stored appropriately and waste streams will be segregated to minimise contamination and to enable maximum recovery of recyclable materials. Recyclable wastes and specialist packaging will be collected and sent for recycling with local recycling companies, wherever possible and practicable.

Non-Recyclable wastes

6.6.41 Waste for final disposal will be transported by Licensed Waste Carriers to local sites which operate in accordance with the appropriate Waste Management Licences issued by the EA. Under the Duty of Care [6.19], the receiving site must be authorised to accept the type and quantity of waste generated. Transport of wastes will be minimised by the selection of local licensed sites where available. The only exception to this principle may be for the disposal of hazardous wastes (contaminated soil) where suitable landfill or other disposal sites may only be found further afield. No disposal of waste by open burning will be permitted on-site. Clean excavation wastes arising from the Development may be incorporated into the final site design by agreement with the regulatory authorities.

6.7 Residual Effects

6.7.1 The residual effects of the construction works are primarily related to waste production, with all other impacts being temporary in nature for the duration of the works only. Such impacts, e.g. noise, dust, traffic, are discussed under the relevant chapters within this ES and are not repeated here. Waste arising from the remediation and construction of the development will have a residual (although temporary) effect on local, regional and national waste management facilities and infrastructure. In view of the comparatively low volumes of such waste this effect is likely to be **minor**.

6.7.2 Table 6.7 below summarises the residual impacts resulting from remediation and construction wastes.

Table 6.7 Residual Impacts from Construction Works

Environmental topic	Impact identified	Significance	Mitigation measure	Residual impact	Residual significance
Construction waste	Approximately 3% of raw materials brought onto site ending up as waste.	D, C, MT, T, -ve	Sustainable waste management measures and reuse of materials on site where possible.	Minor adverse	Minor adverse
Remediation waste	Approximately 30,000m^3 non treatable contaminated soils require off site disposal	D, I, ST, T, -ve	Sustainable waste management measures and the pre-treatment of soil prior to landfill in line with the Regulations	Minor adverse	Minor adverse

Key: +ive - positive; - ive – negative; Negligible, Minor, Moderate, Major; D – direct; I – indirect; C – cumulative; P – permanent; T – temporary; ST – short term; MT – medium term, LT – long term

References

6.1 HMSO (1988) Statutory Instrument 1988 No. 818 (C.26), Control of Pollution Act 1974 (Commencement No. 19) Order 1988

6.2 HMSO (1990) Statutory Instrument 1991 No. 96 (C.3) The Environmental Protection Act 1990 (Commencement No. 5) Order 1991

6.3 British Standards Institute (1997) British Standard 5228

6.4 Department of Communities and Local Government (2004) Planning Policy Statement 23: Planning and Pollution Control

6.5 Department of Communities and Local Government (2005) Planning Policy Statement 10: Planning for Sustainable Waste Management,

6.6 Greater London Authority (2006) London Plan Supplementary Planning Guidance (SPG) on Sustainable Design and Construction

6.7 Greater London Authority (2006) Best Practice Guidance on Control of Dust and Emissions from Construction and Demolition (November 2006)

6.8 London Borough of Ealing (2004) Draft Supplementary Planning Guidance 3: Air Quality and Pollution

6.9 London Borough of Ealing (2004) Plan for the Environment – the Unitary Development Plan

6.10 HMSO (2007) Health and Safety: Number 320, Construction (Design Management) Regulations. April 2007

6.11 Highway Agency (1997) Design Manual for Roads and Bridges (Including amendment dated February 2008)Volume 11 Section 3 Part 3: Disruption Due To Construction.

6.12 The Landfill (England and Wales) (Amendment) Regulations 2005

6.13 Environment Agency (2007) Sustainable Construction – Position Statement 2007

6.14 Health and Safety Executive (2000) HS(G)47: Avoiding danger from underground services. Series number 47

6.15 Institute of Gas Engineers and Managers. Safety Recommendations IGE/SR/18 Edition 2, Communications 1678: Safe working practices to ensure the integrity of gas pipelines and associated installations.

6.16 HMSO (1991) The Water Resources Act

6.17 Department Transport and the Industries (DTI) (2004) Site Waste Management Plans: Guidance for Construction Contractors & Clients - Voluntary Code of Practice.

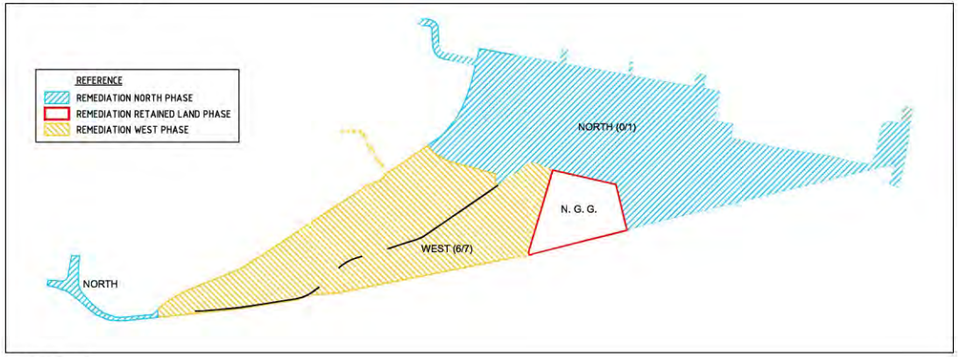
6.18 Guthrie, P.M., Woolveridge, A.C, and Patel, V.S. (1997) CIRIA: Waste Minimisation in Construction - Site Guide (SP133)

6.19 HMSO (1991) Statutory Instrument 1991 No. 2839 The Environmental Protection (Duty of Care) Regulations 1991

REFERENCE (UNIT Nos APPROX. ONLY)		APPROX. TIMING (SUBJECT TO MARKET FORCES ETC.
	PUMP LANE LINK (CONSTR.), EASTERN ACCESS AND REMEDIATION NORTH	
1	PHASE 1 - RESI. (192 UNITS) / ENERGY CENTRE / RETAIL S/M	
2	PHASE 2 - RESI. (82 UNITS) / CINEMA / RETAIL S/M	2010 - 2015
3	PHASE 3 - RESI. (370 UNITS) / SOUTH ROAD BRIDGE WIDENING/HAYES BY-PASS JN	
	OFFSITE HA IMP - M4 J3	
4	PHASE 4 - RESI. (283 UNITS) / FOOD RETAIL / STUDIO / PARKING / FINISH SPINE ROAD	(RESI. 915)
	OFFSITE BULLS BRIDGE	
5	PHASE 5 - RESI. (180 UNITS) / SPR. ROAD FOOTBRIDGE / TOWN SQUARE/ RETAIL	
6	PHASE 6 - RESI. (395 UNITS) / HOTEL	2015 - 2020
	REMEDIATION WEST	
7	PHASE 7 - SCHOOL / HEALTH / RESI. (390 UNITS) / PARK	
8	PHASE 8 - RESI. (303) / M.FOOTBRIDGE	
9	PHASE 9 - RESI. (430 UNITS)	(RESI. 1712)
10	PHASE 10 - RESI. (297 UNITS)	
11	PHASE 11 - RESI. (200 UNITS)	2020 - 2025
12	PHASE 12 - RESI. (249 UNITS)	
13	PHASE 13 - RESI. (122 UNITS)	(RESI. 875)

NOTE:
PHASE 4 (SOUTH) SITE EAR-MARKED FOR TEMP. COMMUNITY NURSERY

REMEDIATION PHASING



SCALE 1:4000

WYG Group Ltd.
Sunley House
4 Bedford Park
Croydon CR0 2AP
Tel: 020 8649 6600
Fax: 020 8649 6629
e-mail: enviro.london@wyg.com
White Young Green
Environmental Consultancy
Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

North

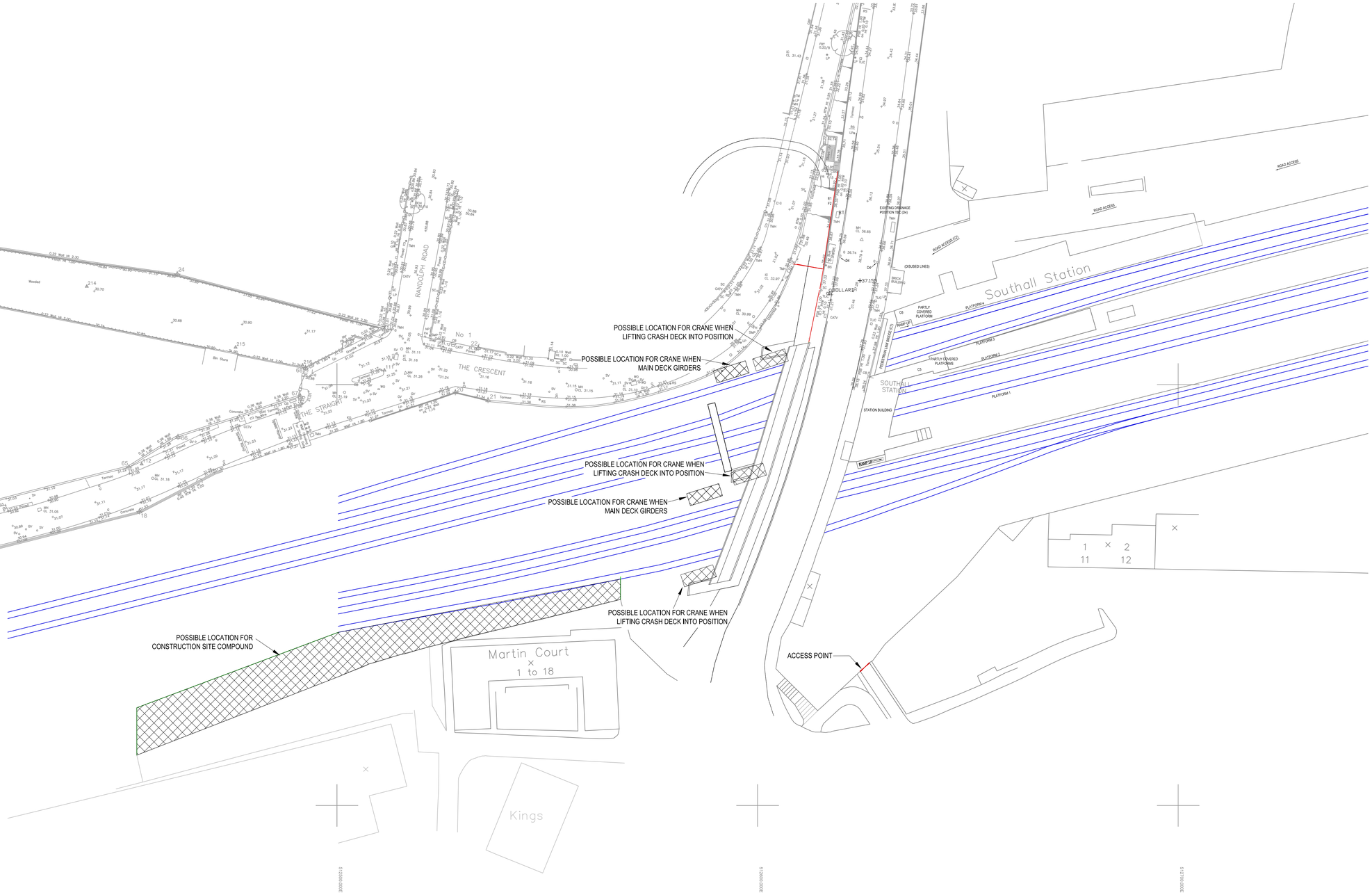
Scale N.T.S.

Indicative Phasing Plan for West Southall

Figure 6.1

Drawing No: PHASING PROPOSALS ALTERNATIVE 10_SK.PH01J

DO NOT SCALE: Contractor to check all dimensions and report any omissions or errors



Rev	Description	By	Chk	App	Date

Brigantine House
27-31 Cumberland Street
Bristol
BS2 8NL

Tel: 0117 924 4144
Fax: 0117 924 4145
e-mail: bristol@wyg.com

White Young Green

Consulting Engineers

Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

Project:

WEST SOUTHALL
SOUTH ROAD BRIDGE
MLN1 9m 10.5ch

Drawing Title:

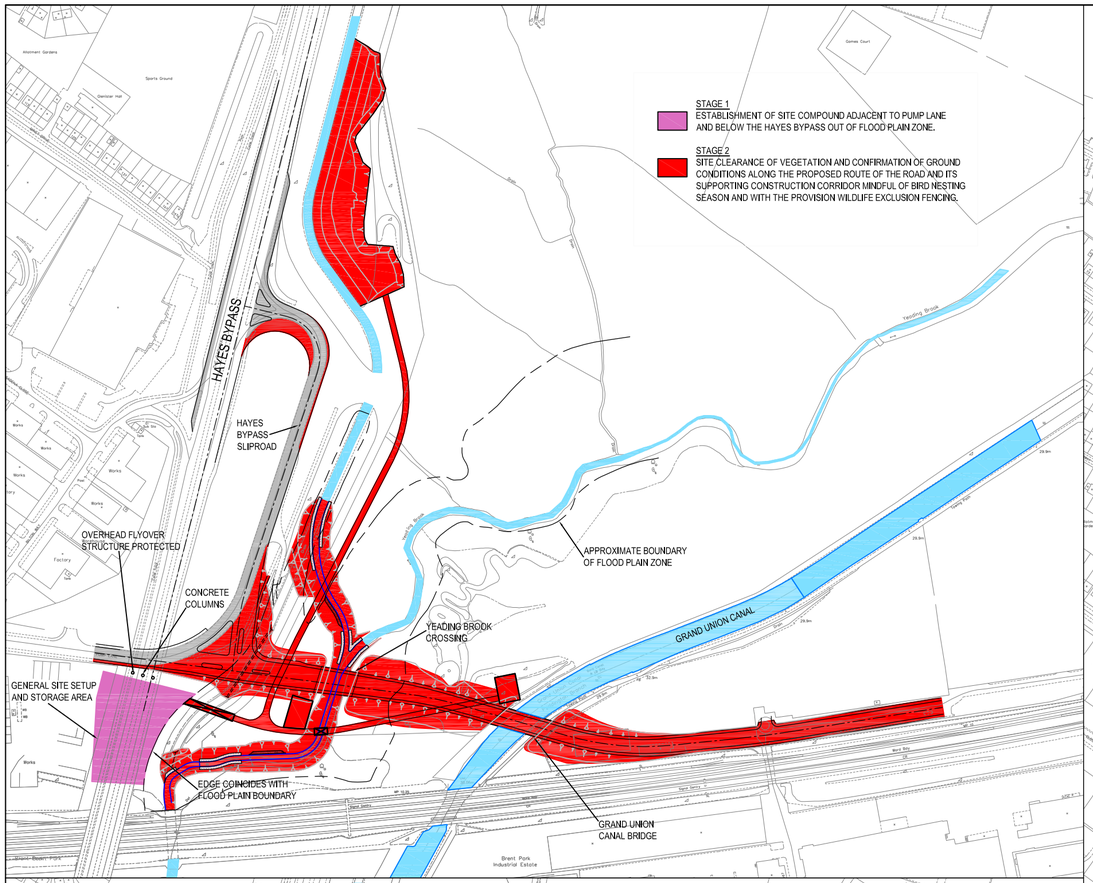
SOUTH ROAD BRIDGE WIDENING
OVERALL PLAN

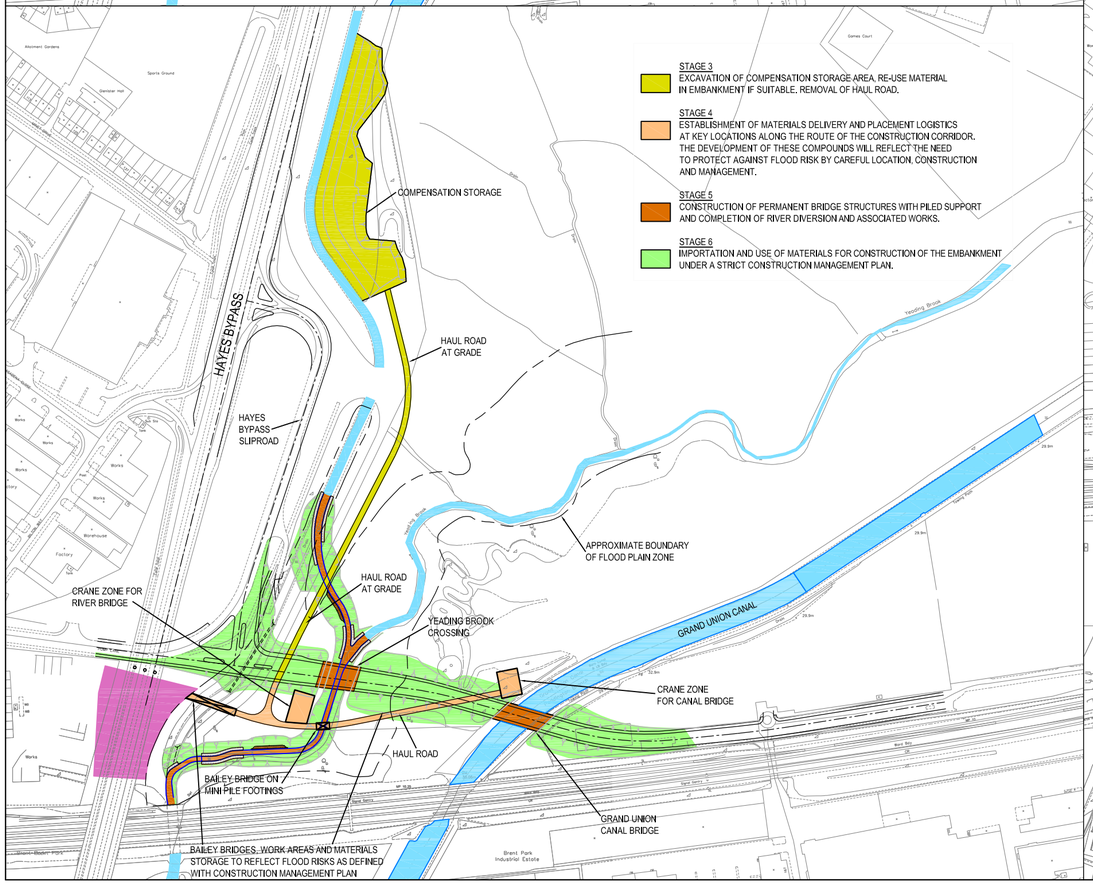
Scale at A1	Drawn By	Date	Checked By	Date	Approved By	Date
AS SHOWN	RAM	JUNE 2008	CJS	JUNE 2008	IB	JUNE 2008

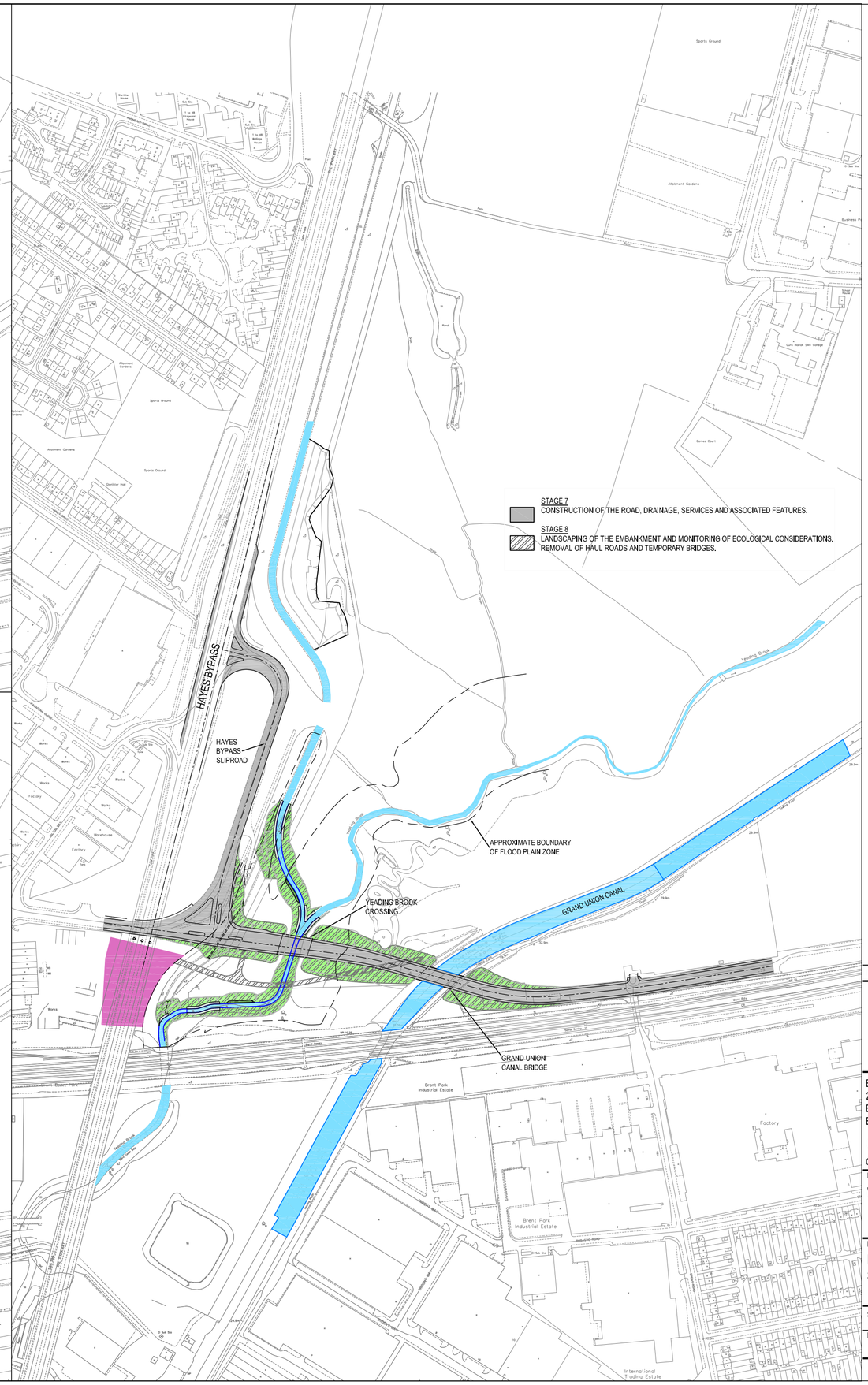
Project No.	Office	Type	Drawing No.	Revision
A012564-1	28	R	Fig. 6.2	0

APPROVAL ☐ INFORMATION ☒ TENDER ☐ CONTRACT ☐ CONSTRUCTION ☐

DO NOT SCALE: Contractor to check all dimensions and report any omissions or errors







Rev	Description	By	Chk	App	Date

Brigantine House
27-31Cumberland Street
Bristol
BS2 8NL

Tel: 0117 924 4144
Fax: 0117 924 4145
e-mail:
bristol@wyg.com

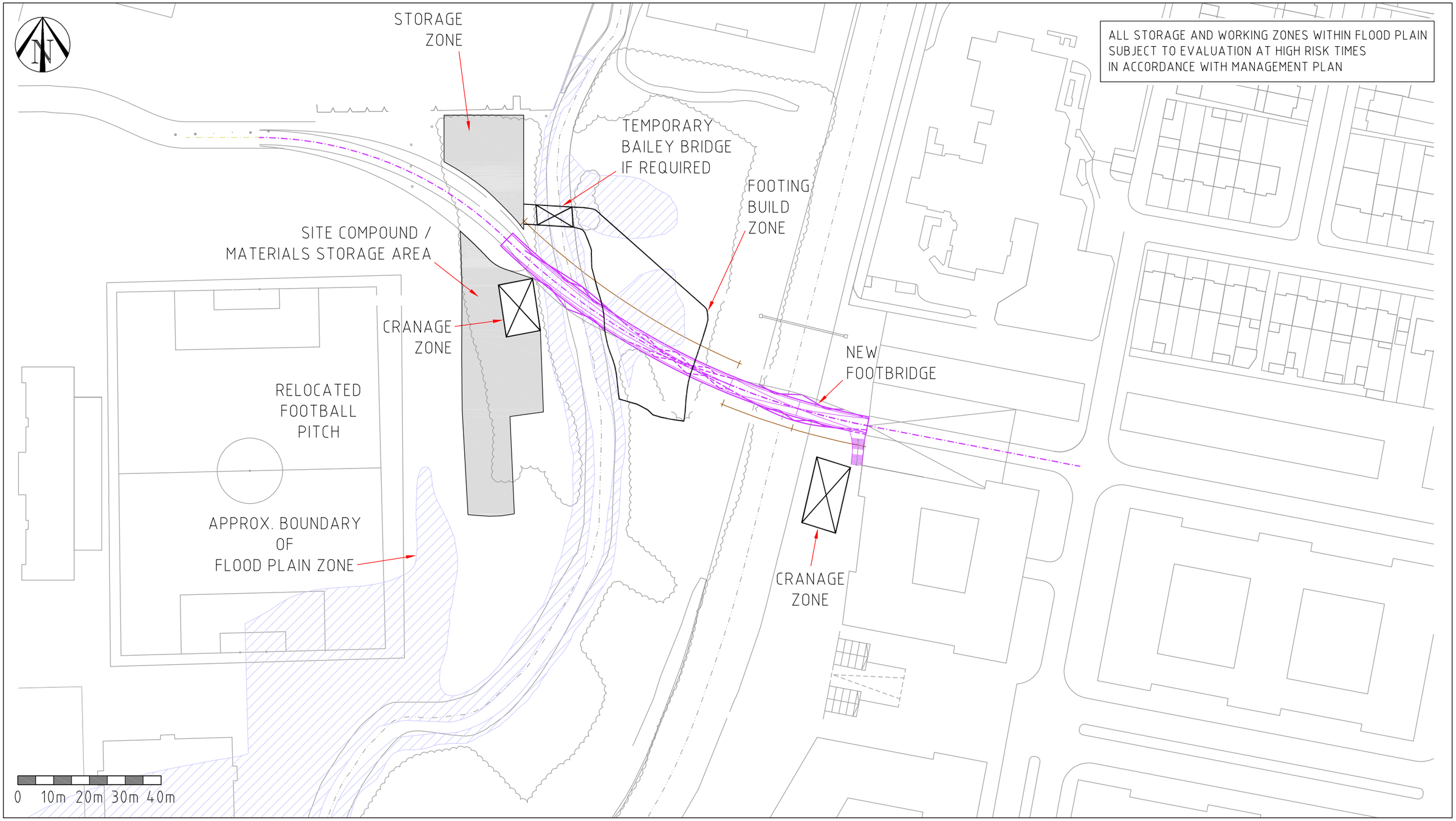
White Young Green
Consulting Engineers
Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

Project:
WEST SOUTHALL

Drawing Title:
PUMP LANE LINK ROAD CROSSING
STAGES OF CONSTRUCTION

Scale at A2	Drawn By	Date	Checked By	Date	Approved By	Date
N.T.S.	KP	19/02/08	RCB	19/02/08	RCB	19/02/08

Project No.	Office	Discipline	Drawing No.	Revision
A012564	28	C	Figure 6.3	-



White Young Green Environmental Ltd.
Yeoman House
63 Croydon Road
London SE20 7TS
Tel: 020 8659 9959
Fax: 020 8676 9968
e-mail: enviro.london@wyg.com
Environmental Consultancy
Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

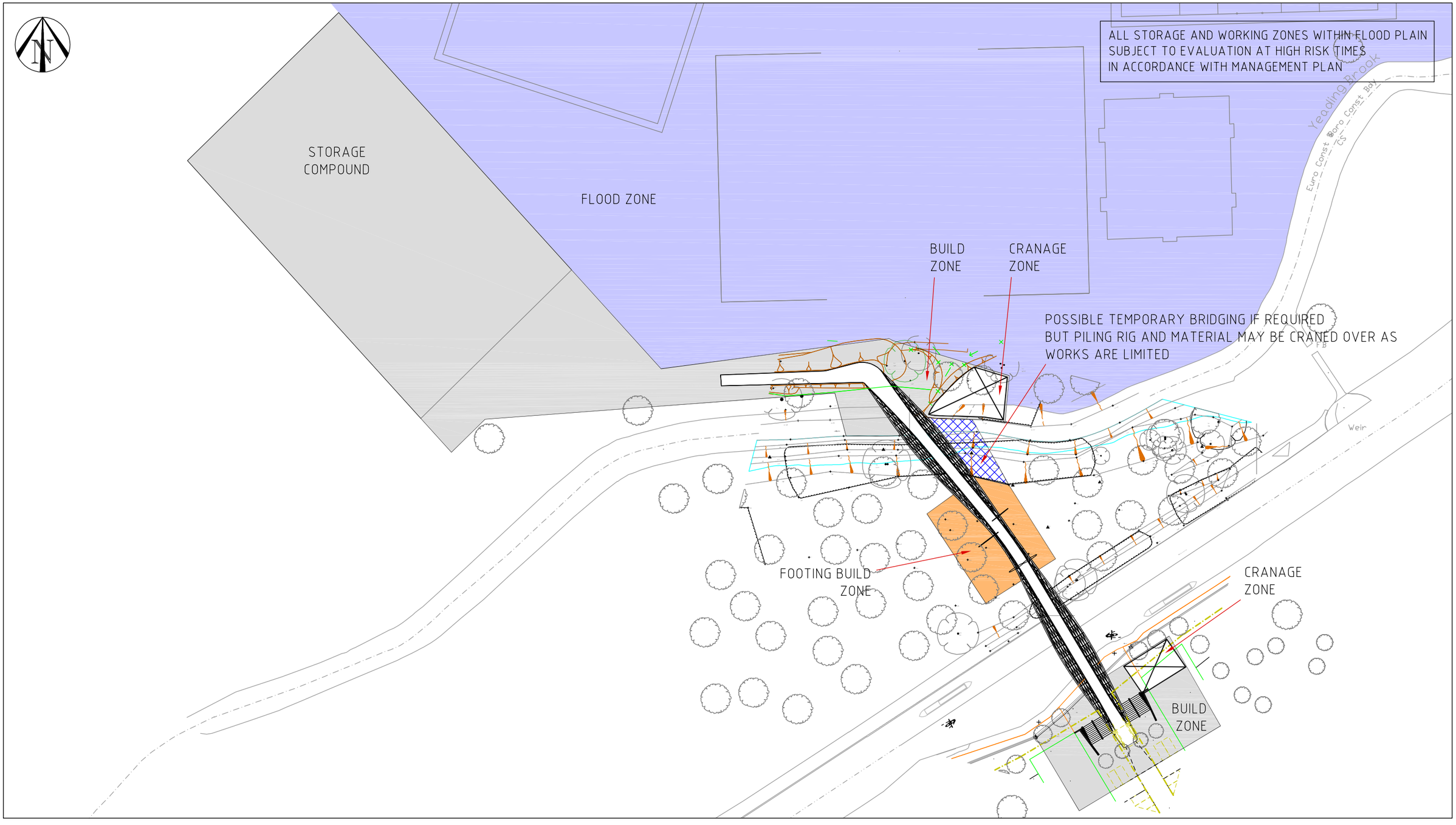
North

Scale N.T.S.

Springfield Road, Footbridge Construction Layout Details

Figure 6.4

Drawing No: Marks Barfield Architects - 368_A_100 rev F



White Young Green Environmental Ltd.
Yeoman House
63 Croydon Road
London SE20 7TS
Tel: 020 8659 9959
Fax: 020 8676 9968
e-mail: enviro.london@wyg.com
Environmental Consultancy
Civil Structural Mechanical Electrical Process Rail Traffic Environmental Project Management

North

Scale N.T.S.

Minet Park, Footbridge
Construction Layout Details

Figure 6.5

Drawing No: Hakes Associates _ 2213 _ PO-02-Plan _ rev B

7 SOCIO-ECONOMICS EFFECTS

7.1 Introduction

7.1.1 This Chapter assesses the likely socio-economic effects of the proposed Scheme on the local and regional population, in both quantitative and qualitative terms. In particular, it considers the potential effects of the development on housing and employment, and it's social and community effects.

7.1.2 This chapter describes the planning policy context for the study, methods used to assess the effects, the baseline conditions currently existing at the Site, and the potential direct and indirect effects of the development during both its construction and operational occupied phases. It also includes discussion of the mitigation and scheme enhancements required to maximise the local regeneration opportunities presented by the Scheme. This assessment of socio-economic and population effects has been undertaken by Hunt Dobson Stringer.

7.2 Planning Policy Context

National Planning Policy

Planning Policy Statement 1 (PPS1): Delivering Sustainable Development (2005) [7.1]

7.2.1 PPS 1 states that planning authorities should actively promote and facilitate good quality development, and sets a number of objectives for sustainable development that planning policies should seek to achieve. These include:

- Promoting urban regeneration, communities, and local and wider economies;
- Bringing forward sufficient land for development to meet needs for housing, industry, retail and commerce, providing for growth and consumer choice;
- Focusing developments in existing centres if they are likely to attract large numbers of people; and
- Promoting efficient use of land through higher density, mixed use development on previously developed land.

7.2.2 Such objectives are reflected in other Government policy statements and White Papers, including the Urban White Paper and Planning Policy Statement (PPS) 3 (Housing) and Planning Policy Statement 6 (Town Centres) together with policies to achieve neighbourhood renewal.

The Urban White Paper, 2000 [7.2]

7.2.3 The Urban White Paper set out a new vision for urban living which offers "*a high quality of life and opportunity for all*". The paper focuses around the theme of urban renaissance and encourages attractive, well kept towns and cities with sustainable communities featuring quality services. Higher density development that focuses on urban areas and relieves pressure on countryside development is also encouraged.

Housing Green Paper (2007) [7.3]

7.2.4 The Housing Green Paper – 'Homes for the future: more affordable, more sustainable' sets out plans for two million new homes between 2007 and 2016 (240,000 new homes per year) and three million by 2020.

7.2.5 In providing these homes, the Paper sets out that this target includes 1.6 million homes outlined in the Regional Spatial Strategies; 150,000 – 200,000 homes in the new and emerging RSS plans, and an additional 100,000 across 29 growth points prioritised by the government.

Planning Policy Statement (PPS 3): Housing, 2006 (7.4)

7.2.6 PPS3 sets out the Government's new policies for the provision of housing. It emphasises the need to deliver a better balance between housing demand and supply in every housing market and to improve affordability where necessary, and reflects key principles set out in PPG3 of creating sustainable, inclusive, mixed communities in all areas. Developments should be attractive, safe, and designed and built to a high quality. They should be located in areas with good access to jobs, key services and infrastructure.

Planning Policy Statement (PPS 6): Town Centres, 2005 (7.5)

7.2.7 PPS6 highlights the benefits of high density mixed use development. It says that higher density, mixed use developments that are soundly designed and built around existing centres should be actively encouraged. PPS6 also emphasises the importance of planning for the growth of town centres, to maintain their vitality and viability.

Planning Policy Guidance (PPG 13): Transport, 2001 (7.6)

7.2.8 PPG13 gives guidance on the relationship between land use and transport. It emphasises reducing the need to travel by locating development in city centres, near transport interchanges, and by developing at higher densities and with mixed uses.

Regional Planning Policy

The London Plan – Spatial Development Strategy for Greater London –Consolidated with Alterations since 2004, Mayor of London, February 2008 (7.7)

7.2.9 The former Mayor of London presented a vision for London and proposals for how to achieve this in the London Plan (2004). This has recently been updated to consolidate the Draft Further Alterations document (September 2006) that has undergone a full programme of consultation and Examination in Public.

7.2.10 Overall, the total population of London is expected to rise from its estimated current position of 7.57million to 8.26million by 2026. In terms of households, the anticipated increase is expected to be between 540,000 to 728,000 to create a total of between 3.70 and 3.92 million households by 2026.

7.2.11 The net growth in jobs in London between 2006 and 2026 is projected as 912,000.

7.2.12 The finance and business services sector is stated to account for 65% of job growth in London over the past 20 years. This sector is expected to grow by a further 605,000 jobs (66% of net growth) by 2026. Later in the document it is stated that "*given the dominance of the office-based business sector…the availability of suitable office accommodation is a critical issue*" (para. 3.140).

7.2.13 Despite the dominance of the finance and business sector, the entertainment, leisure and retail industries are also credited as a major driver of job growth. This sector is also expected to experience growth with an estimated 314,000 additional jobs by 2026. It is also highlighted that the hotel and catering sector is set to experience significant growth, particularly given its link to tourism.

7.2.14 As stated above, the population and the number of households in London is set to increase over the 20 year period between 2006 and 2026. Policy 3A.1 deals with the issue of increasing London's supply of housing. It sets out that 'the minimum target for housing provision is 30,500 additional homes per year'. Each London Borough is set an annual housing target which is a proportion of that 30,500 total. The London Borough of Ealing is set an annual housing delivery target of 915 homes.

7.2.15 The Site is located in the London Borough of Ealing which is one of the boroughs comprising the West London Sub-Region. It is within the Heathrow Opportunity Area which covers a total area of 821ha comprising Hayes, West Drayton, Southall, Felton, Bedfont Lakes, and Hounslow. This Opportunity Area is set a target of accommodating 11,000 additional jobs and 10,750 additional homes between 2001 and 2026.

Sustaining Success: The Mayor's Economic Development Strategy (LDA, 2005) [7.8]

7.2.16 There is still vital work to be done across London to maintain and improve the City's economic competitiveness, as described in 'Sustaining Success, the Mayor's Economic Development Strategy'. Sustaining Success is the most recently published Economic Development Strategy by the London Development Agency (LDA) on behalf of the Mayor of London.

7.2.17 The LDA specify their role in Chapter 1 of the Strategy as supporting London's sustainable development. Four promotional tools are implemented in order to strive for sustainable development:

- Promoting business growth and development across all sectors;
- Promoting access to employment and skills enhancement;
- Promoting London as a World City and a capital city; and
- Promoting economic inclusion and building on diversity.

7.2.18 Key importance is placed on utilising land and other scarce resources effectively within this strategy. This can be achieved by regeneration of brownfield sites, promoting denser, mixed-use developments and encouraging energy efficiency.

7.2.19 Within the Strategy, West London is considered to contain areas with a strong economic reputation, juxtaposed with areas of significant deprivation and economic uncertainty.

Sub-Regional Policy

West London Sub-Regional Development Framework [7.9]

7.2.20 The West London Sub-Regional Development Framework (SRDF) was published in May 2006 and issues guidance on implementation of policies contained within the London Plan. The SRDF identifies an urgent need for more affordable housing and highlights a sub-regional achievement of 46% of all completions being affordable.

Local Policy

Ealing Unitary Development Plan 'Plan for the Environment' (Saved Polices, October 2007) [7.10]

7.2.21 The Statutory Development Plan for the Site is the Ealing Unitary Development Plan (UDP) entitled 'Plan for the Environment' adopted in October 2004.

7.2.22 The Ealing UDP sets out general principles for development within the borough. Those that relate to housing, employment, shopping and community facilities are particularly relevant to this chapter and are set out below:

Housing

7.2.23 "*For development projects which can accommodate 15 or more residential units, or on sites of 0.5 ha or more, the Council will seek 50% of the units on site as affordable housing*." These benefits are to extend to successive as well as initial occupiers (Policy 5.2). Good living conditions and good architectural quality, incorporating sustainable principles are essential (Policy 5.5) The housing mix of any development should be such that it "*promotes the achievement of a balanced residential community*" and small units are encouraged where appropriate (Policies 5.4 & 5.6).

Business

7.2.24 "*The Council will seek to develop a sustainable economic mix in the area*" by retaining an appropriate land supply for industrial and warehousing units, light industrial uses and a wider range of employment uses including offices in shopping centres and at transport nodes, and smaller local economic activities at non-designated sites (Policy: 6.1). Mixed uses will be encouraged where a large scale development is proposed (Policy 6.2). Major Employment Locations should be

developed to incorporate complementary amenities such as open space and public and leisure facilities (Policy 6.5).

Shopping

7.2.25 The Council will seek to maintain and, where necessary, improve the function, character, vitality and viability of the established shopping hierarchy, by recognising the distinctive function of: Metropolitan; Major, District and Neighbourhood Centres; and local parades. In order to achieve this, the Council will endeavour to achieve the highest quality environment and surroundings for all who use the Borough's Shopping Centres (Policy 7.1).

Community Facilities

7.2.26 The Council will encourage the improvement of existing community facilities and will resist development proposals that lead to the loss of these facilities (Policy 8.1). The Council actively encourages the improved provision of meeting places and places of worship for the different communities across the borough, and seeks to incorporate facilities for children and young people into major development schemes (Policies 8.5 & 8.6). Such developments, especially those that will attract large numbers of visitors should preferably be located in the town centre and should improve accessibility by a choice of means of public transport (Policy 8.4).

7.2.27 Policy 8.7 of the UDP sets out the Local Authority's requirements with regard to educational facilities and encourages the joint use of educational buildings by community groups and activities where this would not compromise the educational interests of pupils. It also encourages improvements to the external areas of the school grounds and the need for good design.

Former Southall Gasworks Development Principles: Supplementary Planning Guidance (October 2004) (7.11)

7.2.28 Ealing Council and the Mayor of London have jointly produced 'Development Principles' for the Southall gasworks site, which were adopted as Supplementary Planning Guidance in October 2004. The Development Principles were prepared in close consultation with the Applicant and will be a material consideration when assessing the planning application. The Development Principles have been considered in Chapter 5: Planning and Policy Context and the Design and Access Statement, but their relevance to the socio-economic assessment is considered below.

7.2.29 Paragraph 1 of the Development Principles highlights some of the specific issues facing the former gasworks site and states:

"*The site's location within Southall presents an exciting opportunity as well as a substantial challenge. Southall is a vibrant multi-cultural community, close to Heathrow Airport, but suffering significant physical, social and economic deprivation*."

7.2.30 Under the appropriate mix of uses, the Principles are stated as, inter alia:

"Development should generate a substantial number of jobs meeting identified local and strategic employment needs."

7.2.31 The development of the Site is expected to be a contributing factor to alleviating deprivation within the area, with benefits filtering down to the wider community. Provisions of appropriate community infrastructure, including open space, jobs and environmental improvements are set to support economic development and social cohesion in the wider area. Development has the potential to compliment the existing town centre and assist in addressing local needs.

7.2.32 Childcare should be integrally provided so that parents/carers can access the employment opportunities and other facilities provided.

7.2.33 Development Principles are also set out for housing on the Site:

"*Housing on the site should be a mix of unit sizes to meet local and strategic needs and create a sustainable community*."

7.2.34 Any proposals for new housing should include supporting social and community infrastructure.

LB Ealing Economic Regeneration Strategy (2006) [7.12]

7.2.35 The strategy as a whole is organised around four themes:

- Place: Sustainable development of the environment, property and infrastructure.
- Enterprise: Sustainable growth of businesses and jobs.
- People: Education, skills & economic inclusion.
- Leadership: Management and Resources.

7.2.36 The Southall Gateway Project mentioned in the Strategy is to be projected across these four broad themes, with the main aim of creating economic success. Measures of economic success for investing in Southall are stated as being the number of jobs created and the percentage of increase in jobs.

7.2.37 The Strategy links the construction and maintenance phases of development in Southall positively to the existing businesses in Southall and across Ealing, saying that they will be in a good position to supply goods and services to the new firms and to participate directly in the construction and on-going servicing of the buildings.

7.2.38 The Strategy highlights the potential economic importance of the Heathrow – Paddington sustainable Growth Corridor, stating that Southall will be able to utilise the increase in accessibility to establish itself as a 'Gateway to Europe for an investment from South Asia'.

7.2.39 The Strategy states that increasing the supply of affordable housing across the borough will help to ensure that economic growth is not constrained by labour shortages. Increasing the supply of affordable housing for sale is a particular demand from people in Southall, but is likely to be important elsewhere as well for ensuring a mix of populations and tenures.

Ealing Parks and Open Spaces Strategy 2003-2008 (2002) [7.13]

7.2.40 The Ealing Parks and Open Spaces Strategy looks at what improvements should be made to parks and open space provision in LB Ealing, where such improvements should be made and how they should be funded. It specifies that it objectively evaluates parks against park deficiency as defined in the UDP. The Strategy specifically cites "*securing new open spaces in Southall as part of the eventual development of the Southall gasworks Site*".

7.3 Methodology and Assessment Criteria

7.3.1 The baseline analysis reviews the socio-economic conditions at the Site and surrounding area. It is based on Government data sources including the Census of Population (2001) [7.14] and the Indices of Deprivation (2007) **[7.15]**.

7.3.2 A number of methodologies have been used to assess the socio-economic effects of the Development, as follows:

- Construction effects have been assessed using estimated construction costs per square metre and standard ratios of construction employment to output, assuming an average output per employee of £92,500 per year from GLA Economics "*Laying the Foundations*" Feb 2006 [7.16]
- Employment densities adapted from research carried out by Arup for English Partnerships [7.17]
- Spending estimates of £6 per day for employees from YouGov, (2005) **[7.18]**
- An analysis of population and age profile using models of household size, type and tenure. These models are based on research by the GLA and the London Borough of Wandsworth [7.19]

- Spending estimates using average household expenditure (excluding housing costs) of £300 per week, derived from the Office of National Statistics (ONS) [7.20]

- Assessment of current capacity in schools based on data from the Annual School Census, (2007) [7.21] The average GP list size in the area is assessed using published National Health Service data, (2007) **[7.22]**

7.3.3 There are no technical significance criteria relating to assessment of socio-economic effects other than those that relate to specific effects on human populations e.g. noise, pollution, etc. which are dealt with in other chapters of this Environmental Statement. The significance of socio-economic effects is therefore considered in the context of their overall effect on the immediate surroundings and wider neighbourhood in the context of policy guidance and baseline conditions.

7.3.4 The significance of effects has been classified as substantial, moderate, minor or negligible and may be beneficial or adverse and temporary or permanent as described in Chapter 2: ES Scope and Methodology. The effects are considered for the Inner Impact Zone, Outer Impact Zone and Regional (London) levels, described below.

Definition of Study Area

7.3.5 The assessment has been carried out in relation to two impact zones; the Inner Impact Zone and the Wider Impact Zone, which are defined as follows:

- The Inner Impact Zone – the local area surrounding the Site.

- The Wider Impact Zone – LB Ealing, LB Hillingdon and LB Hounslow.

Inner Impact Zone

7.3.6 The Inner Impact Zone comprises the wards of Dormers Wells, Lady Margaret, Norwood Green, Southall Broadway and Southall Green in LB Ealing; Barnhill, Botwell, Charville, Pinkwell, Townfield, West Drayton and Yeading in LB Hillingdon; and, Cranford, Heston East and Heston West in LB Hounslow.

7.3.7 The Inner Impact Zone is mainly derived from the Heathrow (Hayes/West Drayton/Southall/Stockley Business Park) Opportunity Area as defined by the London Plan. It is considered that this is an appropriate area in which to assess the socio-economic effects of the proposals, given the London Plan's requirements to provide significant additional jobs and homes in this area (see Chapter 4: Planning and Policy Context in this ES). The Main Site lies within the centre of this Opportunity Area. The Inner Impact Zone also includes the additional wards of Charville, Barnhill, Yeading, Pinkwell and Heston East, due to their close proximity to the Site.

Wider Impact Zone

7.3.8 The Wider Impact Zone is derived from the Boroughs that surround the Site. Although the Main Site itself is located only within the London Borough of Ealing, it is recognised that the proposals have the potential to have wider reaching effects on the adjoining boroughs of LB Hounslow and LB Hillingdon.

7.3.9 Where appropriate, the baseline assessment refers to West London and London as a whole. This allows for comparison between the study area and the wider region.

7.3.10 The Main Site lies within LB Ealing, whereas the western access Pump Lane Link Road and the two Footbridges into the Site land in LB Hillingdon. LB Hounslow lies further south of the Site, but has the potential to be affected by the proposal in terms of employment and facilities.

Education and Healthcare Facilities

7.3.11 A bespoke study area has been identified for the assessment of education and healthcare facilities. These are described below.

7.3.12 The Ealing Primary Care Trust (PCT) has informed RPS that the general radius of influence for General Practitioners (GPs) is approximately ½ mile (800m). Therefore, the assessment for healthcare will identify GPs within 800m of the Site.

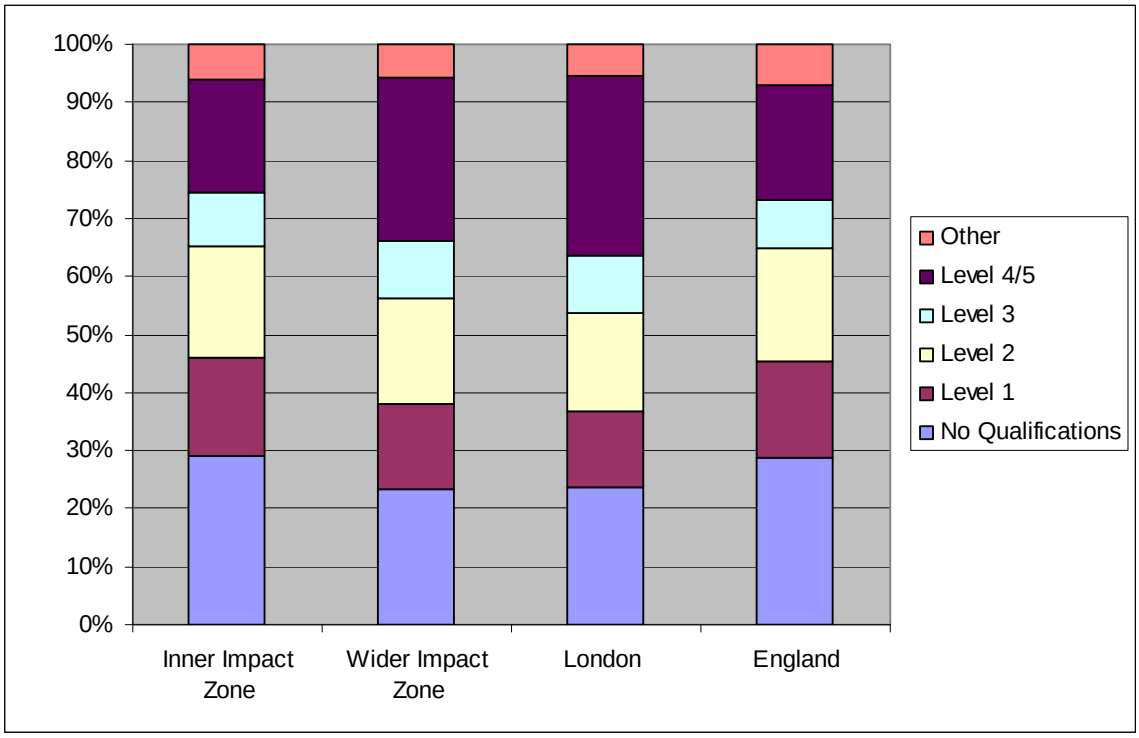
7.3.13 LB Ealing and LB Hillingdon Local Education Authorities (LEA) have indicated that residents should have access to a primary school within 1 mile and a secondary school within 2 miles. LB Hounslow have indicated that they assess access to education on a 2 mile radius for primary schools and a 3 mile catchment area for a secondary school. As the Site lies within LB Ealing, the assessment will identify primary and secondary schools within the catchment set by that council. The assessment of education provision will however, also take into account the effects of broadening the catchment area to 2 and 3 miles respectively. The radius of education and healthcare provision has been calculated from the eastern and western edges of the Site. This allows for all schools to be taken into account that are accessible within 1 and 2 miles of any part of the Development.

7.4 Baseline Conditions

Demographic Baseline

7.4.1 The proportion of residents who have no qualifications or NVQ Level 1 qualifications is higher in the Inner Impact Zone than in the Wider Impact Zone, London and England as a whole. The proportion of residents who have a maximum of NVQ Level 4/5 qualifications is lower in the Inner Impact Zone than it is in the Wider Impact Zone, London and England. Figure 7.1 shows these disparities.

Figure 7.1 Qualification Level Proportions of Residents



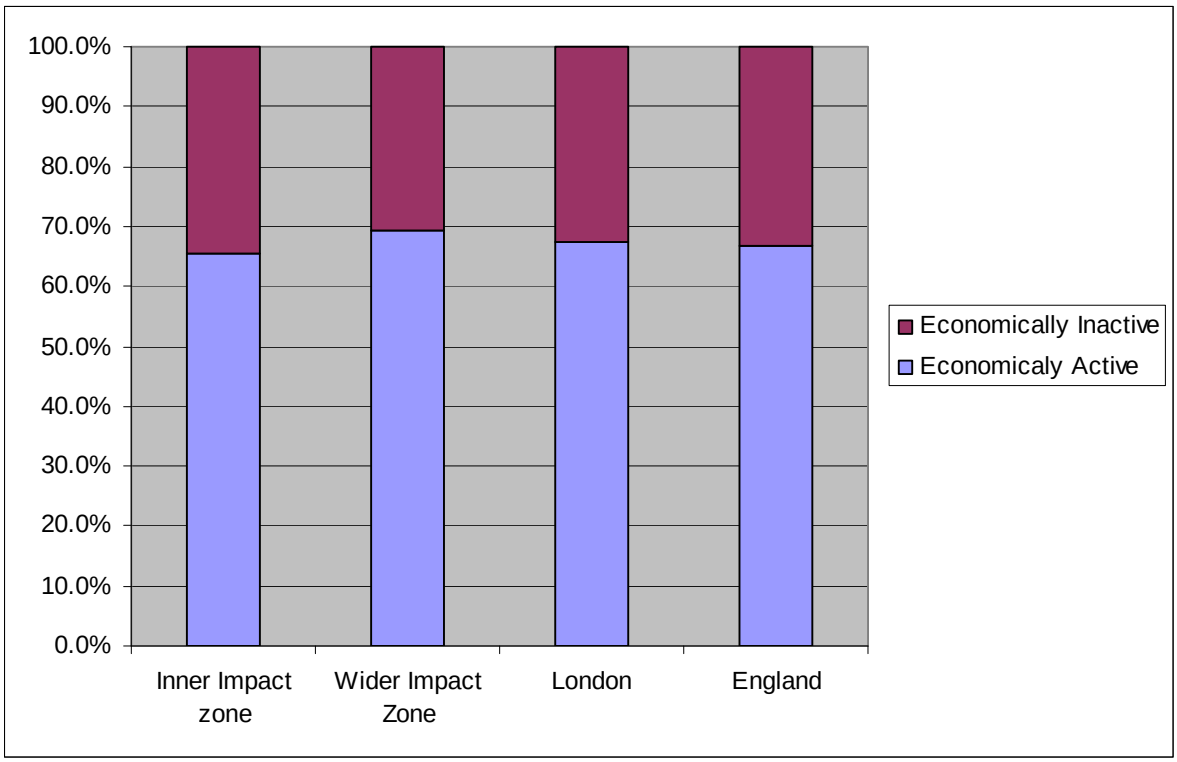
Source: Census 2001, Office for National Statistics

7.4.2 All of the areas of study have a higher proportion of residents working in distribution than in banking and finance and public administration, compared to the London and National averages. Both the Inner Impact Zone and the Wider Impact Zone have a higher proportion of residents working in transport than London and England as a whole. There are a higher proportion of the residents of the Inner Impact Zone working in manufacturing than there are in the Wider Impact Zone and London. Table 7.1 presents the split of residents for each industry type.

Table 7.1 Industry Proportions of Residents

	Agriculture	Energy	Manual	Construction	Distribution	Transport	Banking	Public	Other
Inner Impact Zone	0.0%	0.2%	9.9%	2.9%	25.6%	16.6%	19.4%	22.0%	3.3%
Wider Impact Zone	0.1%	0.2%	5.7%	3.8%	24.2%	20.6%	23.2%	17.4%	4.9%
London	0.1%	0.2%	5.0%	3.0%	21.7%	7.7%	32.7%	23.0%	6.6%
England	0.8%	0.5%	11.1%	4.5%	24.3%	6.1%	21.4%	26.2%	5.1%

Figure 7.2 Economic Inactivity Proportions of Residents



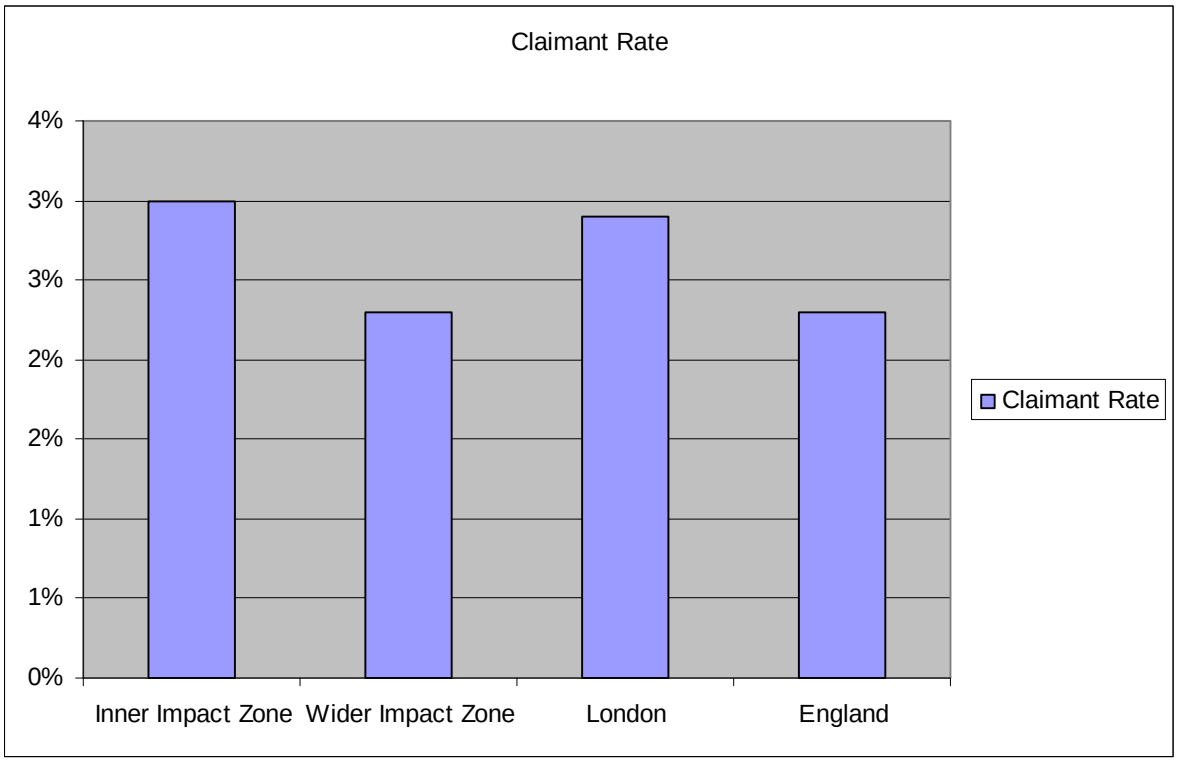
Source: Census 2001, Office for National Statistics

7.4.3 Figure 7.2 presents levels of economic inactivity in the different zones. It can be seen that economic inactivity is higher in the Inner Impact Zone than in the Wider Impact Zone, London and England.

7.4.4 Figure 7.3 shows the proportion of residents who claim Jobseekers Allowance.

7.4.5 The proportion of residents of the Inner Impact Zone who claim Jobseekers Allowance is higher than the proportion in the Wider Impact Zone, London and England.

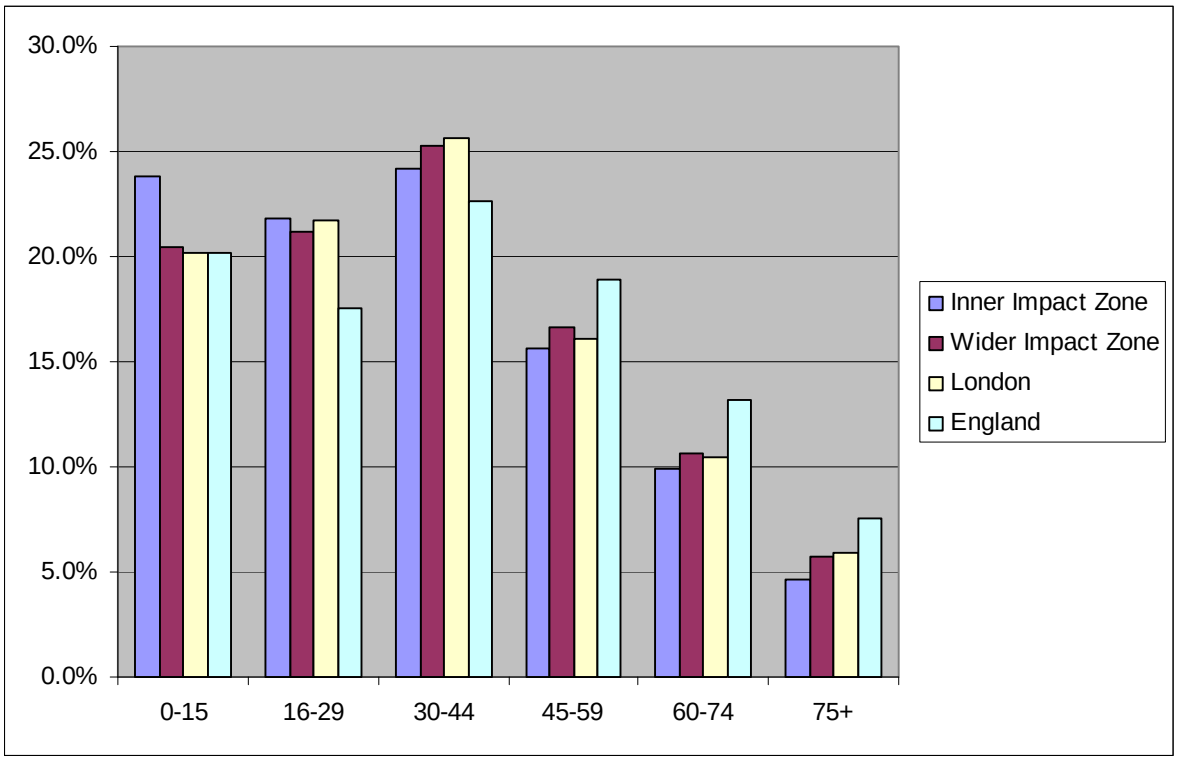
Figure 7.3 Claimant Count Proportions of Residents



Source: Census 2001, Office for National Statistics

7.4.6 The Site is in the Southall Broadway ward in the London Borough of Ealing in West London. The population of Southall Broadway ward is 13,066. The population of the Inner Impact Zone is 180,617. The age profile of residents for the two impact zones is shown below in comparison to London and England.

Figure 7.4 Age Profile of Residents



Source: Census 2001, Office for National Statistics

7.4.7 Figure 7.4 shows that the age profile of the overall population of the Inner Impact Zone is younger than that of the Wider Impact Zone, London and England. There are lower proportions of people over the age of 45 in the Inner Impact Zone than in the Wider Impact Zone, London or England.

7.4.8 Figure 7.5 shows the ethnic breakdown of residents.

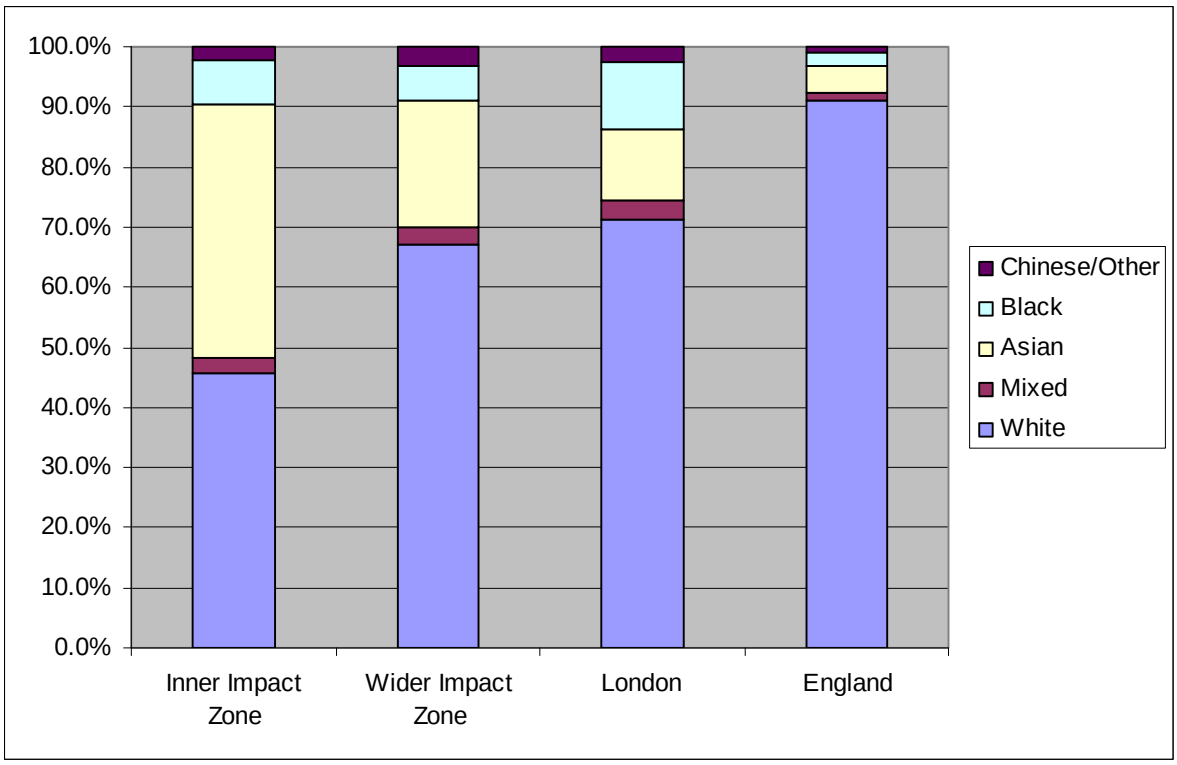
7.4.9 The ethnic breakdown of the Inner Impact Zone shows that it has a significantly higher proportion of Asian residents in comparison to the Wider Impact Zone, London and England.

Housing Baseline

7.4.10 This housing baseline assessment focuses on trends in the housing market within the Inner and Wider Impact Zone and West London and the existing type and condition of housing. It also considers the housing need of the Wider Impact Area based on the Housing Strategies produced by the Boroughs within the Wider Impact Zone.

7.4.11 There is a need to increase the level of affordable housing in West London and the 'Heathrow City Growth Action Strategy Action Plan' identifies a number of strategic housing development sites, which can help to achieve this, including the Southall gasworks.

Figure 7.5 Ethnicity of Residents



Source: Census 2001, Office for National Statistics

Housing Tenure and Condition in the Inner and Wider Impact Zone

7.4.12 LB Ealing, Hillingdon and Hounslow all have a lower percentage of social rented housing than the London average, as does the Inner Impact Zone as a whole. LB Ealing has a social rented stock of 19% and LB Hillingdon 17%, compared to a London average of 26%. However, there are wards within the Inner Impact Zone that have particularly high percentages of social housing. Norwood Green has 33% social rented housing, Townfield 31%, Cranford 31% and Heston West 33%. The wards of Charville and Lady Margaret have particularly low levels of social rented housing at 9% and 6% respectively.

7.4.13 Key statistics relating to housing in the areas of study are set out in the Table 7.2.

Table 7.2 Housing Statistics

	Inner Impact Zone	Wider Impact Zone	London	England
Household Size	2.88	2.5	2.35	2.36
Rooms	4.74	4.81	4.68	5.33
Overcrowding	20.90%	15.50%	17.3%	7.1%
Flats	26.2%	35.0%	48.3%	19.4%
Social Rented	21.8%	19.5%	26.2%	19.3%

Source: Census 2001, Office for National Statistics

7.4.14 The Inner Impact Zone has a larger average household size than the Wider Impact Zone, London and England. Both the Inner and Wider Impact Zones have a higher average amount of rooms per house than the London average, but both are lower than the average for England. The proportion of houses that are deemed overcrowded in the Inner Impact Zone is higher than the proportions for elsewhere. There are a lower percentage of flats in the Inner Impact Zone than the wider impact zone and London, but a higher percentage than England.

Housing Need

7.4.15 The baseline position in terms of housing need for the Wider Impact Zone has been determined through an analysis of the relevant Housing Strategies, including the West London Housing Strategy (2003) [(7.23)] the LB Ealing Housing Strategy 2004-2009 [(7.24)]. Any housing that is proposed on the Site will be contributing towards the targets for LB Ealing and the Hayes/West Drayton/Southall/Stockley Business Park Opportunity Area as a whole.

7.4.16 There is a need within LB Ealing for 1,983 affordable houses per year over the next 10 years, to clear the current backlog. 934 of these should be one bedroom homes, 659 two bedroom homes and 389 of three or more bedroom homes.

7.4.17 The greatest identified need is for "*potential private sector households in need of affordable household space*" i.e. those looking to own a home but who can't afford it under present conditions. There is also a significant future need identified (932 per annum) for emerging new households currently aged 8-17, and for households accepted as homeless (992 per annum). This figure does not include key worker accommodation.

Education and Training

The Skills Gap

7.4.18 There is a higher than average percentage of people within the Inner Impact Zone who have no qualifications. Compared to the London average of 24%, 29% of working age people within the Inner Impact Zone as a whole have no qualifications. This percentage is even higher in the wards of Dormers Wells, Southall Broadway, Southall Green, Botwell, Townfield, West Drayton and Yiewsley, where just over 30% of the working age population have no qualifications.

Education

7.4.19 The Local Education Authorities have indicated that few children within the area surrounding the Site will travel over 1 mile to a Primary School or over 2 miles to a Secondary School, and that most with travel shorter distances. The capacities of schools within these radii have been obtained from the Annual Schools Census.

7.4.20 There are 18 primary schools within 1 mile of the Site. Eleven of these schools are within LB Ealing, 6 are within LB Hillingdon and 1 is within LB Hounslow. There are 617 surplus places within these schools. The nearest two primary schools to the Site are Beaconsfield Primary and Blair Peach Primary. These two schools have combined surplus capacity of 65 places at present. A table showing the list of primary schools within 1 mile of the Site, along with information about their capacities, the number of pupils they have on roll, and their surplus totals and percentages is given in Appendix 7.1.

7.4.21 A new primary school will open at Norwood Green in September 2009. This will also be within one mile of the site and will create places for two forms of entry in addition to nursery provision.

7.4.22 There are 12 secondary schools within two miles of the Site. Five of these are located in LB Ealing, four are within LB Hillingdon and three are within LB Hounslow. There are 333 surplus places within these schools. The nearest secondary schools to the Site are Guru Nanak Sikh Secondary School and Villiers High. These two schools have a combined surplus capacity of 38 places at present. A table showing the list of secondary schools within two miles of the site, along with information about their capacities, the number of pupils they have on roll and their surplus totals and percentages is given in Appendix 7.2. Figure 7.6 shows all primary and secondary schools with 4500m of the Site.

7.4.23 Nursery provision is either within dedicated nursery schools or, in the majority of cases, a nursery class within a primary school. There is no guidance on the distance that a child should travel to nursery school. However, it is assumed here that this should not be greater than the one mile. There are two dedicated nursery schools within one mile of the Site. Greenfield's Nursery School and Grove House Nursery School combined have 240 part time places. In addition, 17 of the 18 primary schools within one mile of the Site have nursery classes incorporated. The closest primary schools to the Site with nursery classes are Beaconsfield Primary and Blair Peach Primary. These two schools currently have 38 and 59 nursery pupils on roll respectively.

7.4.24 LB Ealing's School Organisation Plan 2003-8 [7.25] states that overall the Borough offers almost universal provision for 3 and 4 year olds, but that there is a shortage of provision in some areas of the Borough. The relocation of Glebe Nursery with Featherstone Primary School in 2005, improved both nursery and primary level provision. The Hillingdon School Organisation Plan [7.26] states that LB Hillingdon provides 2,236 nursery places via private day nurseries and play centres and 3,740 nursery places through maintained schools. The School Organisation Plan for LB Hounslow [7.27] shows that the borough currently has a total of 2,208 nursery places on roll.

Health Service Provision

7.4.25 There are ten health centres within 800m of the Site. These are shown in figure 7.7.

7.4.26 Ealing and Hillingdon Primary Care Trusts (PCTs) have indicated that there is a deficit in existing healthcare provision within the study area. This is evident from an analysis of list sizes. The target list size used by Ealing PCT is 1,900, compared to an average list size within the study area of approximately 2,100 patients per GP. Ealing PCT has said that a large percentage (45%) of GPs operate from terraced and semi-detached houses and therefore cannot expand or improve their existing facilities.

7.4.27 There is also a lack of dedicated Health Centres within the study area. The PCT states that there is an existing need for a health centre to serve Beaconsfield Road area, to the north of the Site, as they consider that the railway line acts as a divide between the north and south of Southall. There is also an existing Primary Care Access Centre (PCAC) on Woodlands Avenue, to the immediate north of the Site, which acts as a 'back-stop' for GP practices that are unable to provide 24 hour access to primary care.

7.4.28 A new health centre has opened on Southall Broadway that provides modern health care facility on the high street, offering a range of community services including the diabetic retinal screening service and Saturday morning antenatal clinics.

Hospital Provision

7.4.29 The nearest hospital to the Site is Ealing Hospital, which is approximately 1.5 miles away. Ealing PCT have stated that all of the residents within the vicinity of the Site tend to use Ealing Hospital, as opposed to Hillingdon Hospital, which is located between Cowley and Hillingdon, just to the north of the Inner Impact Zone.

Other Independent Contractors

7.4.30 The PCT refer to ancillary facilities such as dentists, pharmacies and opticians as 'other independent contractors' and these have also been considered within ½ mile of the Site. This is because they tend to serve a more local role. The PCT manage the money allocated for these contractors and negotiate the provision locally depending on local need. The PCT indicated that there may be a requirement for an additional dentist surgery in the area.

7.4.31 The location of ancillary facilities is shown below in Figure 7.7. Ancillary facilities within the area include 5 dentists, 11 pharmacies and 6 opticians.

Community and Cultural Facilities

7.4.32 Community and cultural facilities include libraries, theatres, cinemas, community centres, youth centres and places of worship. Community facilities and cultural facilities are a means of stimulating social inclusion and provide an important resource to the existing and proposed community. The provision of community and cultural facilities has been assessed across the Inner Impact Zone, as it is considered that people will generally be prepared to travel further to use a specific facility. However, some community facilities do serve a more local role and this will be considered when assessing the adequacy of current provision.

7.4.33 The maps provided as Figures 7.8 to 7.10 show the location of community and cultural facilities within 800m of the Site. The types of facilities are summarised as follows:

- Community centres - There are various community centres within the Inner Impact Zone, providing for a range of community, cultural and social needs. There are four community centres within 800m of the Site.

- Clubs and associations – There are three clubs and associations within 800m of the Site, not including leisure clubs.

- Libraries – There is one library within 800m of the Site. This is Southall Library.

- Places of Worship – There are 19 places of worship for various faiths within 800m of the Site. The majority of these will be easily accessible to future residents of the proposed development.

- Cinemas – There is a cinema, specialising in Asian films, within 800m of the Site. Ealing Broadway is the nearest centre to the Site providing 'blockbuster' film releases.

Shopping Facilities

7.4.34 The nearest retail centre to the Site is Southall Town Centre and this is the nearest main centre to serve the local population. The next closest centre is Hayes centre, which is located to the far west of the Site, within LB Hillingdon.

7.4.35 Southall Town Centre is an acknowledged centre of excellence for Asian retailing and serves as a 'hub' for this type of shopping. It also serves local shopping needs of the surrounding population. For the majority of their other non-food shopping needs, existing residents tend to look to the larger centres of Ealing and Hounslow.

7.4.36 Southall Town Centre has a deficiency of multiple retailers and mainstream comparison retailers and this is causing residents to look further afield for this type of shopping.

7.4.37 Despite being defined as a Major Centre in the London Plan [(7.10)], the retail offer in Southall consists of a majority of independent ethnic retailers.

7.4.38 The Retail Assessment submitted as a separate Planning document with this application states that Southall:

- "*Has few national multiple retailers, resulting in residents looking to other centres in West London to meet their shopping needs*"; and

- "*Lacks investment by quality retailers, which was identified in the Southall Town Centre Strategy as a weakness of the town centre*".

7.4.39 The Retail Assessment also identified the following key issues facing Southall:

- The Household Survey underpinning the Retail Assessment, demonstrates that only 5.6% of residents in the study zone that covers Southall Town Centre and the former gasworks site purchase clothes, footwear and other fashion goods from Southall, whereas 25.8% of residents purchase such goods from Ealing and 38.2% of residents purchase such goods from Hounslow;

- The Household Survey also demonstrates that only 3.3% of the residents in the study zone that covers Southall Town Centre and the former gasworks site carry out their main food shopping in Southall, whereas over 30% residents will do their main food shopping at an out-of-centre Tesco store in Hayes, and a further 26.4% of residents will do their main food shopping at either the Tesco's stores in Isleworth and Western Avenue or the Sainsbury's in Hayes.

- A significant and growing imbalance of provision between the area within the study area and outside, with expenditure outstripping turnover of existing facilities by a magnitude of up to two to one. In other words, residents are spending an equivalent of half their expenditure outside the area and therefore travelling elsewhere; and

- An element of retail provision within the proposed Scheme would add qualitative improvements for the proposed population. Major investment in the Site is also likely to result in an increase of

visitors to Southall Town Centre, thereby strengthening and enhancing its role as a Major Centre.

Recreation, Open Space and Leisure Facilities

Open Space

7.4.40 There are 22 parks and open spaces within the Southall area, consisting of 1 District Park, 12 Local Parks and 9 Small Local Parks.

7.4.41 The Minet Country Park, which lies to the immediate west of the Site is located within LB Hillingdon and qualifies as a District Park. The Minet Country Park has been subject to a recent planning approval for substantial improvements, which include the provision of picnic sites, a children's playground, a wetland area, five-a-side football courts and a possible velodrome.

7.4.42 Southall Park and Southall Recreation Ground, which are in close proximity to the Site, are well equipped in terms of formal outdoor sports provision. In the Open Space Audit carried out in relation to the Parks and Open Spaces Strategy (2003-2008) [7.28], Southall Park scored high in terms of GFPA (Green Flag Park Award) indicators for outdoor sports provision. It has provision for bowls/croquet, cricket, play equipment, multi-sports pitches and tennis. It scored an average of 6.8 for outdoor sports provision, which meets the indicator of 6.5 for GPFA status. Southall Recreation Ground scored less highly, but has provision of cricket and football pitches, play equipment and tennis.

7.4.43 In addition, there are a large number of dedicated playing fields to the west of the Site, within LB Hillingdon. As well as the Minet Country Park, which includes limited sports pitches, there are playing fields and recreation grounds at Cygnet Way, King George's Field, Rectory Park, Belmore Playing Fields, Brookside Playing Fields and Hitherbroom Park.

Leisure Facilities

7.4.44 There are four Leisure Facilities within 800m of the Site. Featherstone Sports Centre, managed by Featherstone High School, has a sports hall, indoor courts and a hard court area. There is also Beezee Health, Olympian Fitness Centre and the Southall Sports Centre on Beaconsfield Road which opened in January 2005 and has a sports hall, gym facilities, a sauna and fitness studio and offers a wide range of fitness programmes. This centre is located within close proximity of the Site and will be available for future residents.

Crime

7.4.45 The occurrence of notifiable offences during 2001/2 in LB Hillingdon and LB Hounslow was below the London Borough average of approximately 32,000. However in LB Ealing, the level of notifiable offences is significantly higher at approximately 39,000. There is also a high proportion of violent crimes within LB Ealing. The incidence of theft and handling of stolen goods is by far the most common of notifiable offences for all three boroughs, which is consistent with London as a whole.

7.5 Assessment of Effects

7.5.1 The potential socioeconomic effects of the proposed Scheme are considered in the following section. These are sub-divided into two sections; construction effects (temporary) and those effects of the 'Principal Assessment Year' (permanent).

Construction Effects

Loss of Existing site uses

7.5.2 The proposed Scheme is to be located on disused industrial land at the site of a former gasworks and currently provides 530 jobs (approximately 280 full time equivalent [FTE]) related to site security staff and employees of Purple Parking Ltd who lease much of the Site.

Construction Employment

7.5.3 Using standard ratios of construction employment to output and estimated construction costs per square metre, it is possible to estimate the number of construction jobs that will be generated by the development. This would result in an estimated 8,200 construction years of employment. By convention, a permanent full-time job is regarded as ten construction years of employment. This equates to 820 FTE construction jobs. Though this may vary as the project is taken forward, this is seen as a reasonable estimate.

7.5.4 Typically, around half the jobs associated with the Scheme will be off-site or elsewhere in the construction supply chain. Therefore, the estimated number of on-site FTEs is around 410. The actual construction headcount on-site will vary above and below this figure over the duration of the construction period, with different levels and types of employment depending on the development phase.

7.5.5 Construction employment is relatively mobile and it is not particularly meaningful to consider its impact at a local level. However, construction of the proposed development will provide a large number of entry level job opportunities.

7.5.6 At the Inner Impact Zone level and the Outer Impact Zone level, the employment impact of the construction phase would be a medium-term, beneficial and moderate effect. At the regional level, the impact would be negligible.

Principal Assessment Year (2024/5)

Employment

7.5.7 Completion of the proposed Scheme will provide a range of employment floorspace as set out in the Table 7.3 below. Based on job densities for each end use, the approximate number of jobs can be calculated.

Table 7.3 Job Creation as a result of Floorspace

Use	Total GEA (m^2)	Net at 80%	Indicative no of rooms	Employment Ratios*	Jobs	Source/Assumptions
Retail	13,667	10,934		20	547	Arup Town Centre Net Internal
Supermarket	5,822	4,658		19	245	Arup Food Superstores
Café/Restaurant	1,720	1,376		13	132	Arup
Hotel	9,608	7,686	160	0.5 per room	80	Assumes 3 star
Conference	2,979	2,383		50	48	General Leisure
Cinema	4,651	3,721		90	52	Arup
Health centre	2,511	2,009			50	Assumes 20 GP's plus extra staff
Education	3,402	2,722			60	25 teachers plus head and other staff
Office	1,039	831		20	52	
Studio	1,739	1,391		32	54	Assume small business units
Total					**1,320**	

Source: Research by Arup, 2001 and Hunt Dobson Stringer, 2002
* Net internal floorspace per Full-Time Equivalent job

Employment Floorspace

7.5.8 As Table 7.3 shows, the Scheme has the potential to create just under 1,320 jobs.

7.5.9 The majority of jobs on-site will be in retail. Retail jobs are particularly important for local employment, as these businesses typically offer jobs across a broad spectrum of skills, including those suitable for people without high level qualifications, and also tend to employ people more

locally than other sectors. An analysis of 2001 Census data [7.16] shows that in London, around 30% of all employees live within 5km of their workplace, whereas in the wholesale, retail, hotel and restaurant sectors more than 41% of people live this close to work.

7.5.10 In addition, the proposed development abuts the existing town centre, and a strong retail content will serve to bring critical mass to Southall's shopping offer.

Net Employment Effects

7.5.11 Increased business activity will also lead to increased purchasing by business, some of which will be captured locally. Together these can result in the creation of indirect employment locally.

7.5.12 English Partnerships (EP) estimate that the local level multiplier for an average scheme with average supply chain links is 1:1.1. That is, for every 100 jobs created on-site, another ten will be created in the local neighbourhood as a result of increased purchases by businesses and by employees (e.g. on sandwiches at lunchtime). This means that for the West Southall Scheme, the 1,320 new jobs on-site will stimulate another 130 off-site.

7.5.13 At a wider level, multiplier effects can be much higher and EP estimates that regional multipliers for an average development with average supply chain links are around 1.5. That is, for every 100 jobs created on-site, 50 will be created off-site around the region. As such, for the Development, the 1,320 new jobs on-site could stimulate another 660 in the wider area.

7.5.14 This is assessed as a substantial beneficial impact at the Inner Impact Zone level, **moderate beneficial** at the Wider Impact Zone level and **negligible** at the regional level. The net employment effects are beneficial long term effects and so do not require mitigation, therefore, the residual impact remains the same.

Housing and Population

7.5.15 The Applicant wishes to apply for permission to construct between 3,400 and 3,750 residential dwellings for the Site, across a construction period currently estimated at 15 years.

7.5.16 The exact mix of housing units will be determined through the detailed planning process as the Scheme is brought forward through reserved matters applications. However, in order to assess the likely effects from the development, a mid-range of housing has been assessed, between 3,400 and 3,750 units. In addition, the detailed phasing of the Scheme will also be determined later on in the development process. For this assessment, three stages of completions have been assumed at equal intervals during a 15 year build period.

7.5.17 Table 7.4 below shows three phased completion dates. For each date, the total population and child yield is estimated.

Table 7.4 Cumulative Population and child yield by phase of development

	Aged 0-2	Aged 3-4	Aged 5-11	Aged 12-16	Total Pop
Stage 1 (phases 1-4)	60	40	100	60	**1,510**
Stage 2 (phases 5-9)	200	130	330	190	**4,890**
Stage 3 (phases 10-13)	**270**	**170**	**440**	**250**	**6,500**

Figures are rounded to the nearest 10 people.

7.5.18 The total population estimated for the Principal Assessment Year is likely to be approximately 6,500 people, including around 440 children aged 5-11 (primary level) and 250 aged 12-16 (secondary level).

7.5.19 As the Scheme is to be brought forward in detailed stages, there may be some variance from the unit numbers used in the population assessment. However, the main conclusions of the assessment are unlikely to change from those set out below. This is due to the relationship between unit numbers and population numbers not being linear. This is also true for the child yield of the development.

7.5.20 Since there is a fixed floorspace for residential development, the number of units being built will be dependent upon the percentage of affordable housing provided within the Scheme. A higher percentage of affordable units will result in a lower quantity of units provided overall, as affordable units are larger than private ones. Affordable units have a higher population and child yield than private ones, however, the increase in per-unit yields will be offset by a lower overall quantity of units.

7.5.21 Thus, the conclusions for demand on school places and primary healthcare, as set out below, remain the same.

7.5.22 The effect of the new population on Education and Primary Healthcare facilities is discussed below.

Primary Healthcare

7.5.23 Based on approximate target GP list size for the PCT of 1,900, the development would require around four new GPs in order to achieve this target.

7.5.24 Without mitigation through on or off-site provision, this would be an adverse, long term effect.

7.5.25 However, the development will include a GP surgery of between 1,800 and 2,500 m2. This could accommodate more than eight GPs and would be sufficient to fully mitigate the effect of the new population as well as providing for the wider area.

7.5.26 After mitigation, the effect is assessed as **beneficial and long term** at the Inner Impact Zone level.

Schools

7.5.27 As with the overall population, the number of children living in the development in the Principal Assessment Year will depend upon the unit mix scenario and the phasing.

7.5.28 Table 7.5 shows the likely number of children for the three stages of completion. These yields are compared to existing primary, secondary, post-16 and nursery level provision in the following sections.

Primary Schools

7.5.29 At primary level, the baseline analysis identified 617 surplus places within existing local schools, which equates to an average 7.3% surplus. The Audit Commission recommends an operating surplus of around 5% for school planning purposes and parental choice. Taking this into account, the surplus over and above 5% is 200 places. This is insufficient to accommodate the gross number of primary aged children projected to live in the development of around 440.

7.5.30 It is likely however, that this will not represent the net demand for school places. Some children, particularly in the social rented units will already have a place at a primary school within the borough. Modelling shows that around two thirds of the primary school children will live in the social rented units. In addition, others may be educated privately. The overall net demand will therefore be lower than the range given above. National express

7.5.31 The effect of the additional demand for primary school places (without mitigation) is assessed as adverse at the Inner Impact Zone level.

7.5.32 The development proposals include a two form of entry (2 FE) primary school which could accommodate up to 420 children. Given that net demand will be lower than the gross figure of 440, this school will be sufficient to accommodate the demand arising from the Scheme. Therefore, following construction and opening of this school, the effect is assessed as **negligible** at all levels.

7.5.33 In terms of phasing, it is likely that the primary school would need to form part of the stage (Phase 7) of development, ready to accept pupils in the third stage of development. For the early completions, spare capacity in local schools will absorb additional demand, and it is likely that a proportion of children in the social rented units will already have places in primary schools within LB Ealing.

Secondary Schools

7.5.34 For secondary places, the baseline identified 430 surplus places and although this equates to 3% surplus (which is below the 5% recommended surplus), there are a number of schools with surplus capacity of 5% or more. The overall number of surplus places is sufficient to accommodate the demand arising from the proposed Scheme. In addition, most of the pupils do not represent genuine net additional demand since they will live in the social rented units and already have a school place within the Borough or attend an existing school outside of the Borough. Modelling shows that around 70% of secondary aged children will live in social rented units. Children travel further to attend secondary schools and it is likely that many will remain in their existing school even if moving house.

7.5.35 Taking this into account, the effect upon Secondary Education provision is assessed as negligible at all levels. Existing spare capacity and low net additional school place demand will ensure that there is sufficient provision in existing schools.

Post-16 Education

7.5.36 Post-16 Education provision is available at the Southall and West London College which is located on Beaconsfield Road, in close proximity to the Site. The college is in very close proximity to the Site, and is likely to be able to accommodate the future Post-16 Education needs of the population. In addition to existing post–16 education facilities, provision is to be provided at Dormers Wells High School and Villiers High School from September 2009.

Nurseries

7.5.37 The proposed Scheme includes the provision of a nursery, within the proposed Primary School, which is considered to be sufficient to meet the needs of the future population. In addition there are three dedicated nursery schools within one mile of the Site, 16 primary schools with nursery provision, and a proposed 98 place nursery school. It is projected that there will be around 170 three to four year old children living in the development. Statutory provision for nursery aged children is for a part-time place. Therefore, net demand is around half of the overall number of nursery aged children and provision will be made within the nursery on-site for these younger children. Given supply of places in the local area and the proposed on-site facility, the effect upon the provision of nursery places is assessed as **beneficial** within the Inner Impact Area.

Open Space –Recreation and leisure

7.5.38 The study area is well served in terms of leisure centres and gyms. There are three leisure centres in close proximity to the Site, which both have good provision in terms of facilities. However, in order to create a positive living environment for the future population, the Scheme includes the provision of sports pitches and other leisure uses to supplement these facilities.

7.5.39 The newly completed Southall Leisure Centre is also in close proximity to the Site and offers a wide range of facilities for the existing and proposed population.

7.5.40 The Scheme also proposes two new footbridges to the Minet Country Park. These will provide the new population of the development with access to a District Park. It will also provide the existing population of Southall with enhanced access to open space, including access to the Site, which is currently restricted.

7.5.41 The Local Parks proposed, which will be subject to reserved matters applications in conformance to the Parameter plans, enable all of the proposed residential units to have access to a Local Park within 400m.

7.5.42 The proposed footbridges to the Minet Country Park will ensure that the residential units are within the guidelines for access to a District Park.

7.5.43 In terms of playspace, the NPFA guidelines require access from homes to a Local Equipped Area for Play (LEAP) within 400m of a pedestrian route and access to a Neighbourhood Area Equipped for Play (NEAP) within 1000m of a pedestrian route. The proposed residential units are all within the guidelines for LEAP access. All of the residential units, except those to the far southern end of the

Site, are within the guidelines for NEAP access. However, these units are well served by the proposed South Park, which is a LEAP.

7.5.44 In terms of sports pitches, the proposal includes formal multi-purpose sports pitches together with a Sports Pavilion to provide changing facilities, which will be available to the future population and for people already living in Southall.

7.5.45 It is considered that the proposed Scheme incorporates substantial qualitative improvements in terms of access to public open space, particularly in terms of the improved access to the Minet Country Park. At present the area is an industrial brownfield site and the impact of the new recreation and leisure facilities for the new and existing community is assessed as **beneficial and moderate** at the local level.

Spending Effects

7.5.46 There will be increased levels of spending through the introduction of new residential and employment populations.

7.5.47 The average National household expenditure on goods and services (excluding housing costs) is approximately £300 per week. The mid range estimate for net additional dwellings in the development would therefore be expected to generate around £55m a year in household spending, including convenience and comparison shopping. This is assessed as a **beneficial and major** impact at the Inner Impact Area level.

7.5.48 In addition to the spending power of new residents, there would also be spending by those working in the proposed development. This is difficult to quantify accurately, but recent research conducted by YouGov in 2005 found that on average, workers spend £6 per day on food alone. There will be a net increase in jobs on the Site of around 790 (not including construction jobs and excluding multiplier effects) which would suggest local spending by net additional employees could be in the order of £1 million a year. This additional spending is assessed as a **beneficial and minor** impact at the Inner Impact Area level.

Wider, Non-Quantifiable Effects

7.5.49 The overall vision for the Main Site is to create an environment that is attractive to live, work and play in. The creation of a major mixed-use development at the Site has the potential to have wider, 'multiplier' benefits to the surrounding area.

7.5.50 The undeveloped former gasworks site currently forms a physical and mental barrier between the south and north of Southall. The proposed Scheme is an opportunity to improve these links to integrate the Site with the whole of Southall. The development will also improve access for all residents of Southall to the Minet Country Park, through the provision of the footbridges into the park, and to new recreational facilities and parks on the Site itself.

7.5.51 The provision of high quality business and commercial space will benefit a wide range of employment users, including small start-up businesses and cultural industries. The attraction of such businesses will be embodied in an employment and training initiative, which will be controlled by legal agreement.

7.5.52 The provision of a high quality hotel will encourage visitors to stay in Southall and use the facilities both on the Site and within Southall Town Centre.

7.5.53 Southall is already an existing attraction to visitors for Asian products, such as food and clothes. The development will compliment this existing character and help to enhance Southall as a major multicultural centre.

7.6 Mitigation Measures

7.6.1 The development proposals have been assessed and the majority of the socio-economic effects arising from the development are considered positive. This includes the provision of a large quantity

of new homes including much needed affordable provision and a range of sizes, new jobs for the local area and new leisure opportunities.

7.6.2 The new residential population will however place additional demand on community facilities in the local area. In particular, the demand for nursery and primary level education cannot be met through existing supply in the local area. In mitigating this effect, the Applicant proposes a new primary school, including nursery provision to be provided on-site.

7.6.3 In addition, the new residents will place demand upon primary healthcare facilities in the local area. In mitigating this effect, the applicant proposes the inclusion of a Health Centre within the proposed Scheme which will provide sufficient primary healthcare capacity to accommodate the demand arising from the Development.

7.7 Residual Effects

7.7.1 This assessment has been prepared with reference to relevant national, regional, district and local planning guidance. This includes PPS 1, PPG 3, PPS 3, PPG 4 and PPS 6, PPG 17 and the Neighbourhood Renewal Strategy at national level; London Plan at the regional level; and, LB Ealing UDP at the local level.

7.7.2 A range of methodologies have been used in the assessment of socio-economic effects. These include; the use of average output per employee in the construction sector for construction effects; employment floorspace densities for jobs; local patients to GP ratios for health effects; and, per household spending figures to estimate spending effects. The baseline review indicates that the area in which the Site is located features a relatively low level of people employed in growth industries, broadly defined as 'business services'. In addition, the population local to the Site is relatively young and well educated although relatively few people have the upper most or lowest levels of qualifications. There are some areas of deprivation in neighbouring areas to the Site, as defined by the Government's national Index of Multiple Deprivation (IMD).

7.7.3 There are significant beneficial residual effects identified in the assessment. The creation of around 1,320 jobs on-site together with between 3,400 and 3,750 additional homes is in line with relevant socio-economic policy at all levels. In addition, the Site features a strong retail content which will enhance the centre of Southall and provide jobs which are accessible for local people.

7.7.4 Most adverse effects identified in the assessment will be mitigated through the Development Proposals, including the provision of education and health facilities.

Table 7.5 Summary Table of Residual Effects

Effect	Summary Description	Summary of Mitigation	Residual Effect	Assessment of Residual Effect
Employment Effects	Direct and indirect employment effects – jobs created as a result of construction and the completed development, and economic linkages	Potential provision of employment and training strategy to strengthen opportunities for employment for local people	Significant beneficial effects in terms of new employment created	Substantial beneficial effect
Wider Economic Effects	Effect on the profile of the area, including visitor attraction and improving linkages in Southall and the development of a major brownfield site	Potential provision of a strategy to ensure retention of consumer spending.	Significant beneficial effect in terms of regeneration	Substantial beneficial effect
Housing Effects	Effect on the housing profile of the area and the range of housing choice	The provision of a balanced mix of housing including the provision of intermediate and social housing	Significant beneficial effects in terms of providing a range of housing to address existing housing needs.	Moderate beneficial effect

Effect	Summary Description	Summary of Mitigation	Residual Effect	Assessment of Residual Effect
Education Effects	Effect of the new resident population on schools	Provision of a primary and nursery school.	Negligible effect on existing schools as development is providing for the proposed population. Positive effect on new population as a result of provision of nursery and primary school close to their homes.	Negligible/ moderate beneficial effect
Healthcare and Community Effects	Effect of new resident population on healthcare and community facilities	Provision of a healthcare centre and range of community facilities as guided by the Parameter Plans.	Beneficial effect on provision of community facilities	Negligible/ Moderate beneficial effect
Recreation, Leisure and Open Space Effects	Effect of new resident population on leisure facilities and open space	Provision of leisure uses, open space and creation of footbridge access into Minet Country Park	Beneficial effect in terms of recreation and leisure facilities and improved linkages	Moderate beneficial effect

References

7.1 Department for Communities and Local Government (2000)The Urban White Paper

7.2 Department for Communities and Local Government (2007) Housing Green Paper

7.3 ODPM (2005) Planning Policy Statement 3: Housing

7.4 ODPM (2005) Planning Policy Statement 6: Planning for Town Centres

7.5 ODPM (2001) Planning Policy Guidance 13: Transport

7.6 Mayor of London (2008) The London Plan, Consolidated Alterations since 2004

7.7 Mayor of London (2005) Sustaining Success: Developing London's Economy – Economic Development Strategy

7.8 Mayor of London (2006) The London Plan, Sub – Regional Development Framework: West London

7.9 London Borough of Ealing (2004) Unitary Development Plan: Plan for the Environment

7.10 London Borough of Ealing (2004) Former Southall Gasworks Development Principles: Supplementary Planning Guidance.

7.11 London Borough of Ealing (2006) Ealing Economic Regeneration Strategy

7.12 London Borough of Ealing (2002) Ealing Parks and Open Spaces Strategy

7.13 Office for National Statistics (2001) Census of Population

7.14 DCLG (2007) Indices of Multiple Deprivation

7.15 Greater London Authority (2006) Laying the Foundations

7.16 Arup (2001) Employment Densities Report for English Partnerships and the Regional Development Agencies

7.17 YouGov (2005) Survey on Worker Spending

7.18 DMAG (2005) Wandsworth Child Yield Model

7.19 Office for National Statistics (2005/6) Expenditure and Food Survey

7.20 Department for Children School's and Families (2007) Annual School Census

7.21 National Health Service (2007) FOI Data Request

7.22 WLHP (2003) Building Communities: A Housing Strategy for West London

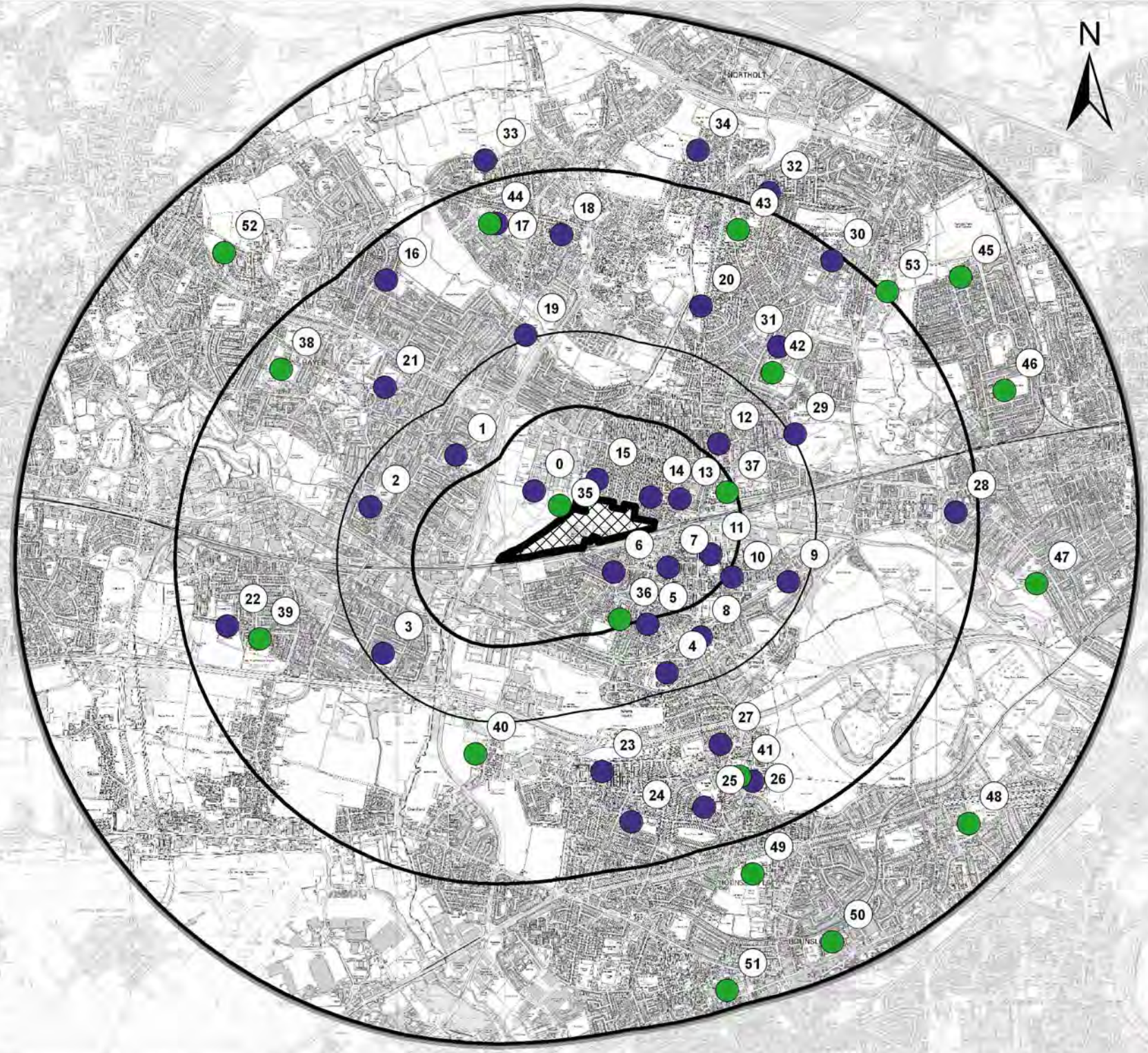
7.23 London Borough of Ealing (2006) Housing Strategy 2004 – 2009: Summary Update

7.24 London Borough of Ealing (2003) School Organisation Plan 2003-2008

7.25 London Borough of Hillingdon (2002) School Organisation Plan 2002/3-2007/8

7.26 London Borough of Hounslow (2003) School Organisation Plan 2003-2008

7.27 London Borough of Ealing (2002) Parks and Open Spaces Strategy

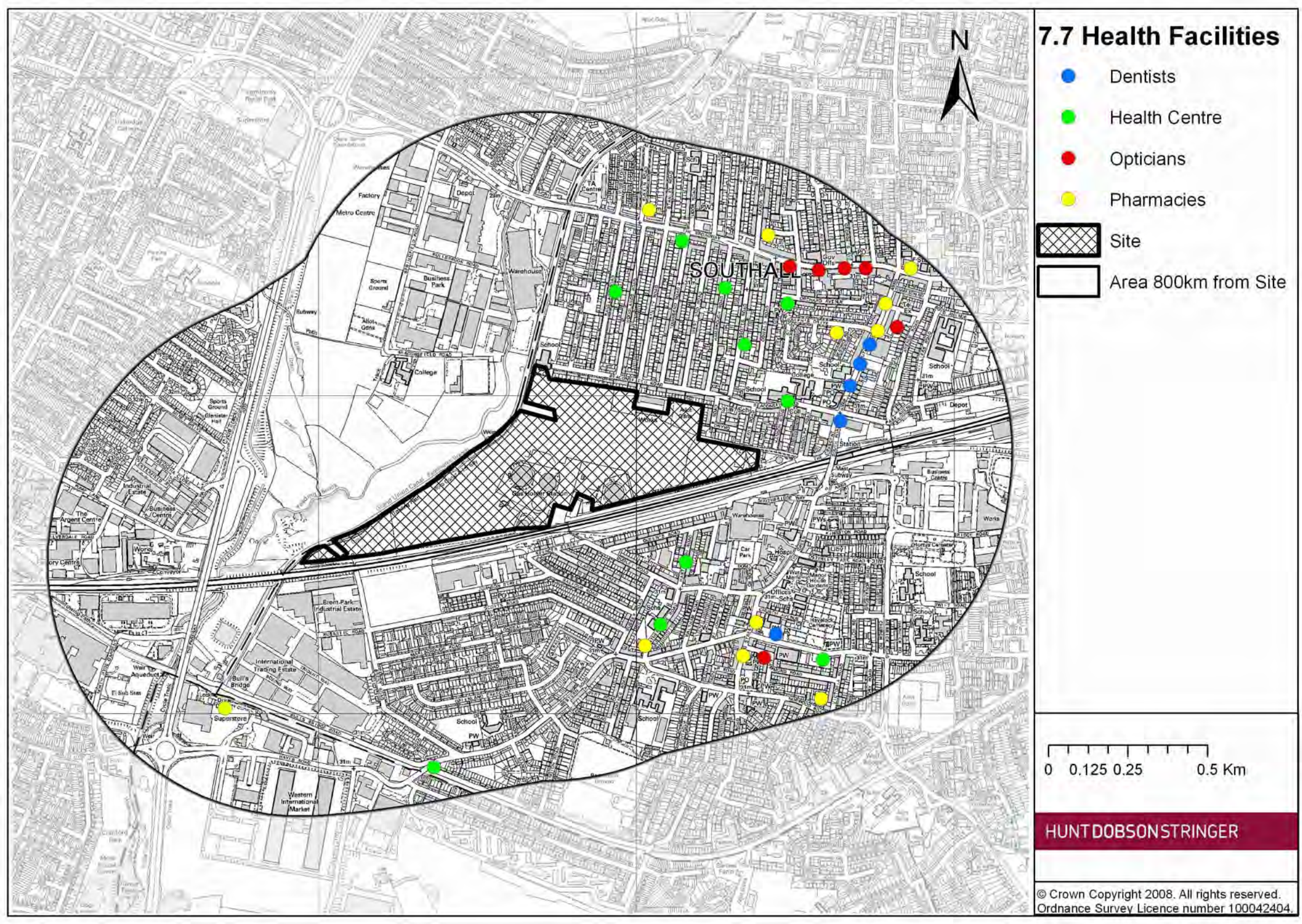


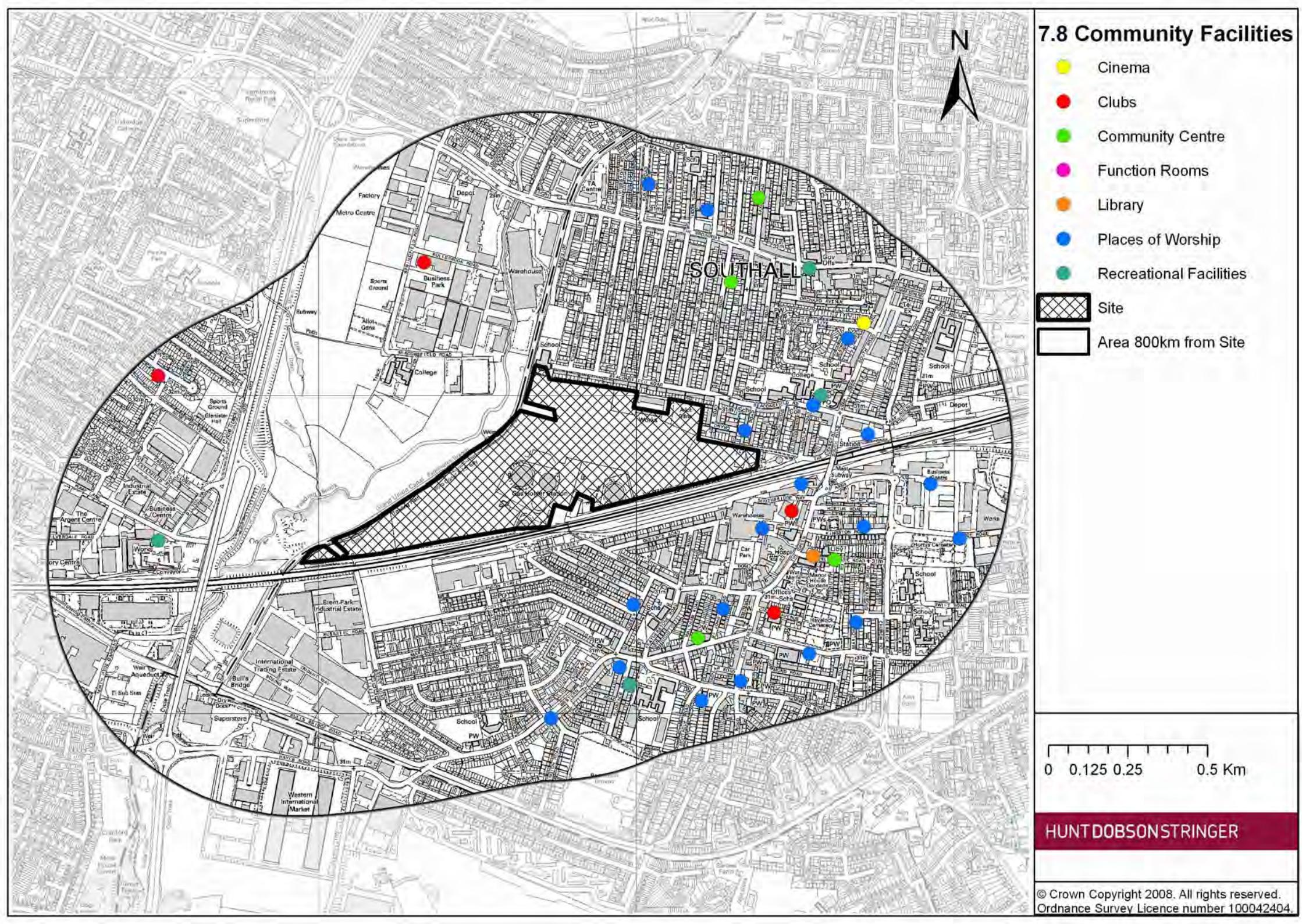
7.6 Education Facilities

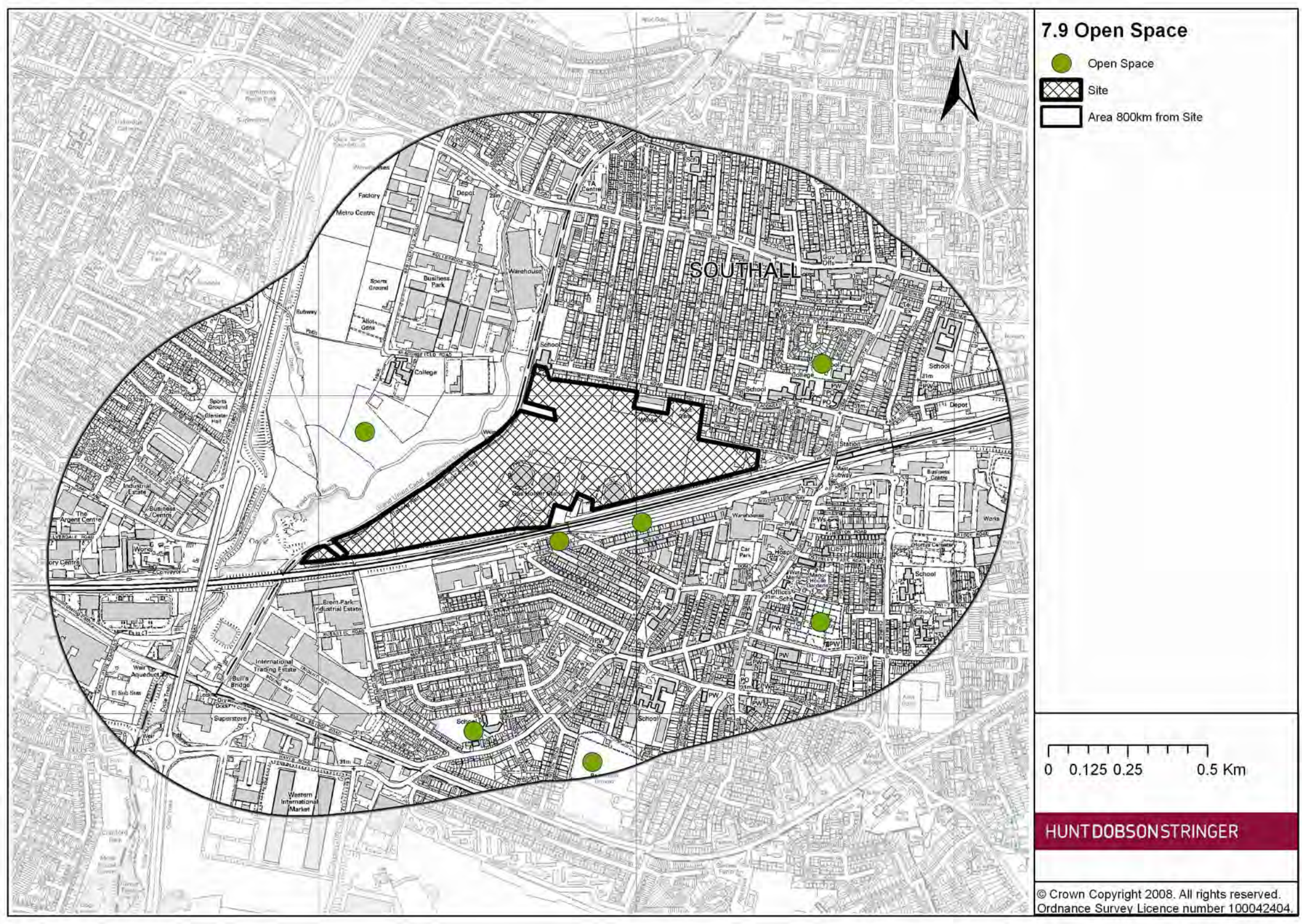
ID	Name
0	Guru Nanak Sikh Primary
1	Minet Primary
2	Botwell House Roman Catholic Primary
3	Cranford Park Primary
4	Norwood Green Junior
5	Clifton Primary
6	Featherstone Primary
7	St Anselms RC Primary
8	Wold Fields Primary
9	Three Bridges
10	Havelock Primary
11	Dairy Meadow Primary
12	North Primary
13	Hamborough Primary
14	Beaconsfield Primary
15	Blair Peach Primary
16	Grange Primary
17	Belmore School
18	Downe Manor Primary
19	Yeading School
20	Durdans Park Primary
21	Dr Tripletts CP Primary
22	Pinkwell Primary
23	Berkely Primary
24	Springwell Junior
25	Andrew Ewing Junior and Infants
26	Heston Junior
27	The Rosary RC Junior
28	St Marks Primary
29	Stanhope Primary
30	Dormer Wells Infants and Juniors
31	Allenby Infant and Nursery
32	Ravenor Primary
33	St Raphael Primary
34	Gifford Primary
35	Guru Nanak Sikh Secondary
36	Featherstone High School
37	Villiers High
38	Hayes Manor
39	Harlington High
40	Cranford Community School
41	Heston Community School
42	Domers Wells High
43	Greenford High
44	Barnhill Community
45	Brentside High
46	Drayton Manor High
47	Elthorpe Park High
48	Isleworth and Syon School for Boys
49	Lampton School
50	Hounslow Manor School
51	St marks RC School
52	Abbotsfield
53	Cardinal Wiseman RC High

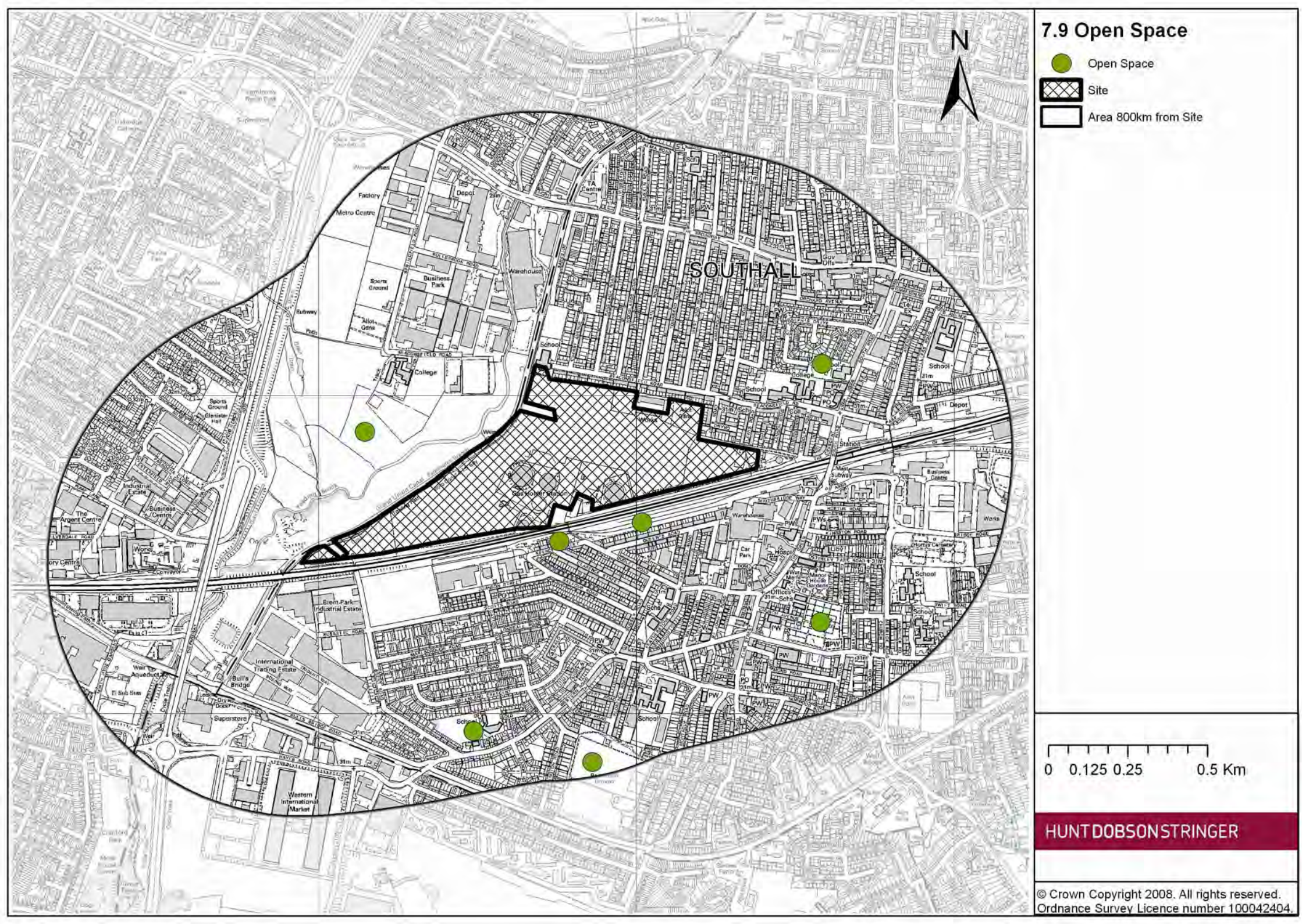
0 0.3750.75 1.5 Km

HUNT DOBSON STRINGER









8 TRANSPORT AND MOVEMENT

8.1 Introduction

8.1.1 This Chapter assesses the likely significant environmental effects of the traffic associated with the redevelopment of the former gas works site in Southall, Ealing. It is based upon the findings of the Transport Assessment (TA) produced by Savell Bird & Axon (SBA), presented in Appendix 8.1.

8.1.2 The Chapter describes the methodology used to assess the effects along with the baseline conditions currently existing at and in the vicinity of the Site, the potential direct and indirect effects arising from the expected trip generation of the Scheme and the effect associated with these new trips. Proposed mitigation measures required to prevent, reduce or offset the likely significant adverse effects have also been described.

8.2 Planning Policy Context

8.2.1 Current Government transport and planning policy focuses on the benefits of economic and commercial growth, particularly through the use of sustainable transport modes. Development encouraging travel by non-car modes is promoted, whilst policy seeks effective integration between land use, transport and development strategy.

National Planning Policy

Planning Policy Guidance Note 13 (PPG13) Transport [8.1]

8.2.2 There is substantial policy support for the reuse of previously developed sites for high density mixed use development, especially in areas that are or will be accessible by a choice of means of transport. Development should encourage the use of travel by modes other than the private car and to reduce the length of journeys.

8.2.3 The key objectives of transport policy, as set out in PPG13 are summarised as follows, to:

- Reduce congestion and the dependency on car travel;
- Reduce levels of air pollution and noise from transport;
- Improve the accessibility and encourage the use of environmentally friendly modes of transport;
- Raise awareness of the effect of transport and travel decisions;
- Reduce the risk and perception of risk of danger from the use of all modes of transport; and
- Promote sustainable growth in terms of economic development and land use planning.

8.2.4 PPG13 further states that the pattern of development, its location, scale, density and mix of land uses can "…*help to reduce the need to travel, reduce the length of journeys and make it safer and easier for people to access jobs, shopping, leisure facilities and services by public transport, walking and cycling*."

8.2.5 PPG13 stresses that maximum use is made of the most accessible sites such as those in town centres or close to public transport interchanges.

8.2.6 PPG13 gives specific guidance on elements such as car parking, requiring standards to be set as maximum permissible levels and encouraging restraint in private car usage.

Other Related Policy Documents

8.2.7 Planning Policy Statement 6 (PPS6) considers planning for town centres. This encourages development in existing centres and in areas that already are, or will be, accessible by a choice of means of transport.

Regional Planning Policy

The London Plan [8.2]

8.2.8 Transport policies of the London Plan are similar to those of PPG13. Significant emphasis is placed on checking accessibility levels and ensuring that major development has adequate accessibility levels. The London Plan parking strategy 3C.23 states:

"*The Mayor will seek to ensure that on-site car parking at new developments is the minimum necessary and that there is no over-provision that could undermine the use of more sustainable non-car modes. The only exception to this approach will be to ensure that developments are accessible for disabled people*".

8.2.9 London plan also notes that LPA Development Plan Documents (DPD) and Local Implementation Plans should:

- *"adopt on and off street parking policies that encourage access by sustainable means of transport, assist in limiting the use of car and contribute to minimising road traffic;*
- *adopt the maximum parking standards set out in the annex on parking standards (annex 4) were appropriate, taking account of local circumstances and allowing for reduced car parking provision in areas of good transport accessibility;*
- *reduce the amount of existing, private, non-residential parking, as opportunities arise;*
- *recognise the needs of disabled people and to provide adequate parking for them;*
- *take account of the needs of business for delivery and servicing movements, and*
- *provide adequate facilities for coaches that minimise impact on the road network capacity and off-road wherever possible."*

8.2.10 This approach seeks to regulate parking in order to minimise additional car travel.

Local Planning Policy

Ealing Borough Unitary Development Plan (UDP), 2004 [8.3]

8.2.11 The transport strategy within the UDP aims "…*to provide sustainable access from homes to jobs, shops and services, and from business to business, by integrating land-use and transport planning, restraining car traffic, promoting improved public transport and facilities for pedestrians and cyclists*…"

8.2.12 The policies summarised below are considered applicable to the Site.

- Policy 9.1 seeks to maximise access on foot, by bicycle and public transport and the promotion of sustainable transport, including the implementation of a Travel Plan;
- Policy 9.5 requires developments to include footpaths that are safe, attractive, well lit and comfortable for all, particularly for those who have mobility difficulties;
- Policy 9.6 requires developers to have regard to the safety and ease of movement of cyclists, and to provide appropriate facilities to promote cycling as a mode of travel.

- Policy 9.8 encourages the introduction of city car clubs and low car housing, particularly in town centre locations and within 200m of stations.

Hillingdon Borough Transport Policies

8.2.13 The Hillingdon UDP, adopted in 1998 [8.4], was subject to review in 2006 with a revised document adopted in September 2007. Section 4 (Reducing Travel Demand) includes three types of policies aimed at reducing travel demand, stabilising the quantum of vehicular trips associated with new developments and dealing with existing day-to-day traffic problems. Car parking standards are set out Annex 1 with the revised policy referring to minimums and maximums for cycle and vehicles in line with national and regional policies.

8.2.14 Hillingdon Design and Accessibility Statement: Accessible Hillingdon (2006) [8.5] provides detailed advice and guidance on the provision of equal, easy and dignified access to buildings, places and spaces and Transport Interchanges (2006) [8.6] sets out design principles for transport interchanges within Hillingdon.

8.3 Assessment Methodology

Scope of Assessment

8.3.1 The scope and methodology of the ES including the TA have been discussed with LB Ealing, LB Hillingdon, Transport for London (TfL) and the Highways Agency (HA) over the past two and a half years through regular transport meetings. Feedback from these bodies formed the basis of the scope and methodologies adopted.

8.3.2 The assessment of the likely significant transport effects has been undertaken using established methodologies and has concentrated on examining the capacity of relevant local transport infrastructure to accommodate the proposed Scheme. This assessment has carried out looking at future year traffic flows before and during the construction period and for the year after the completion of the Development (the Principal Assessment Year). This exercise defines a pattern of flows then used to quantify the potential effects of the development. Thereafter, locations where the predicted changes might cause significant adverse effects are identified and assessed to investigate whether any mitigating measures are necessary to offset such predicted effects. Finally, any residual effects are identified.

8.3.3 The potential effect of the Scheme has been determined by comparing the 'with development' scenario to the 'base' scenario in the various assessment years. In each of the cases, the typical weekday morning and evening commuter peak periods along with the weekend peak have been assessed as the periods when the transport network will be at its most critical.

Highway Capacity

8.3.4 Key to the assessment of capacity on the highway network is the operation of the junctions. Where new infrastructure meets existing highway, or where parts of the existing highway network are predicted to receive significant amounts of additional traffic associated with the development, industry standard junction capacity programmes have been run to test performance. The results of the individual capacity tests are presented in the TA (Appendix 8.1).

8.3.5 The greatest potential effect associated with the development is likely to be at the junctions in the immediate vicinity of the Site, along the South Road corridor to the east and the A312 corridor to the west. It is envisaged that construction will start in 2010 and last for approximately fifteen years with completion and occupation of the final dwellings in 2025. In this regard, the highway network has been assessed in 2006 (as pre-development baseline), 2010 (the start year), 2015 (after 5 years), 2020 (after 10 years) and in 2025 (on completion).

Base Flows

8.3.6 In describing the assessment methodology relevant to checking highway capacity, it is necessary to consider the quantification of the base flows. The base flows are those flows without traffic from the

Scheme but including traffic associated with all known committed development within the vicinity and taking account of any changes predicted as a result of committed alterations to the network.

8.3.7 The Mayor's Strategy and Ealing Local Implementation Plan suggest that traffic grew by 8.4% in Ealing between 1994 and 2004, including a reduction of 1.6% between 2003 and 2004, and sets a target for growth in LB Ealing to be limited to below an average of 4% per annum across all time periods, with zero growth in town centres in the period 2001 through 2011. The growth figures relate to daily flows and it is anticipated that zero growth will occur during the peak periods in the town centre, in line with policy targets and capacity constraints.

8.3.8 Other major committed developments in the vicinity include:

- Western International Market located south-east of the Bulls Bridge roundabout junction. The proposals (Planning Application Reference: P2007/3936) includes the erection of three buildings for employment uses (within classes B1, B2 and B8) with associated car parking, loading and access arrangements.

- The UCS Site located at the northern end of Brent Road immediately south of the London – Cardiff mainline railway line. The proposals (Planning Application Reference: P/2004/2315) include the construction of 59 industrial/warehouse units (Class B1, B2, B8) together with 148 parking spaces, access and landscaping.

8.3.9 However, for the same reasons that traffic growth is constrained to zero in peak periods, the demand flows from these developments will not result in a real increase in peak period movements. The consequence of the demand flows will be that in some cases it will displace existing movement. In other cases it will result in less than demand flows, a shifting of journey time or a shifting of mode.

8.3.10 Nevertheless, for the purpose of this theoretical assessment, estimated demand flows associated with the developments have been included along with a nominal 0.8% assumed increase per annum in peak period traffic movement.

Trip Attraction

8.3.11 The proposed Scheme includes a significant quantum of residential units with limited parking, along with a range of other land uses. In addition, the local highway network is constrained and opportunities to create significant additional capacity for unfettered traffic growth are recognised by the Local Highways Authorities as limited. It is therefore envisaged that public transport, walking and cycling will be key to the success of the development of the Site and that travel by car, particularly as driver alone, will not be the main mode of travel.

8.3.12 Hence the approach has been to estimate the quantum of person trips in the first instance and to apportion trips by mode based on existing (and predicted) mode share data along with conditions on the transportation network.

8.3.13 The potential traffic attraction of the Scheme has been estimated using trip rates from the TRICS and TRAVL databases. The potential quantum of person trips has been estimated based on trip rate information included in the TRAVL and TRICS databases. The TRAVL database includes historic survey data specific to Greater London whilst the TRICS database includes survey data for the whole of the UK. The reason for using both datasets is to increase the available information, although, where possible, only data from Greater London has been used.

8.3.14 Average trip rates have been adopted for estimating the quantum of vehicular trips for the purpose of assessing the potential impact on the highway network. This is considered appropriate given the scale of the development as although some plots within the Scheme will attract higher trip rates during a certain time period, others will attract lower than average trip rates during the same period. Furthermore, restricted parking supply and prevailing traffic conditions on the wider highway network along with the proposed public transport provision will influence travel patterns which is anticipated to reduce the quantum of vehicular trips.

8.3.15 On the other hand, 85th percentile trip rates have been adopted for the purpose of assessing the potential impact on public transport to ensure that the capacity is not compromised.

Internal Trips

8.3.16 The Site covers approximately 37ha and the proposals include a wide range of land uses with residential, employment, retail and leisure elements. As such, there will be a considerable number of trips that have both an origin and a destination within the proposed Scheme, particularly between the residential (social), education, leisure and retail elements of the scheme.

8.3.17 The quantum of internal trips has been estimated taking into consideration the various land uses on the proposed Scheme along with the proximity of competing facilities in the vicinity and the prevailing traffic conditions which will influence the likelihood of making a dedicated external trip. Further details are included in Section 6 of the TA (Appendix 8.1).

Mode Split

8.3.18 Mode share is influenced by various factors, including the ability to travel by that mode, availability of parking (at the destination), prevailing traffic conditions (i.e. congestions both on the local and wider highway network) and cost. It is also important to note that although historic survey data may suggest a particular mode share pattern, these are likely to change with time as people change mode or time of travel, or both.

8.3.19 As such, the share by each mode for each element has been estimated using information from the 2001 Census and the TEMPRO database, with manual adjustments as necessary to take into account the proposed mix of uses, prevailing traffic conditions and policy.

8.3.20 The TEMPRO database is used by planners and modellers to estimate growth and mode share by journey purposed and time of day. The TEMPRO program has been designed to provide projections of growth over time for use in local and regional transport models. It presents projections of growth in planning data and car ownership, and resultant growth in trip making by different modes of transport.

Trip Distribution

8.3.21 The approach has been to estimate the quantum of internal and external trips by mode, and then distribute the external trips taking into consideration observed travel patterns (particularly in relation to work trips from Census data), along with the location of external destinations such as shopping centres and schools taking account of prevailing traffic conditions.

8.3.22 It has been assumed that all of the internal trips are associated with the residential use, i.e. has either an origin or destination with a residential dwelling. However, there will be additional internal trips between other uses and, in particular, linked trips between the various retail uses.

Periods for Assessment

8.3.23 It is generally accepted that employment and education along with health facilities are busiest during the week, and generally closed over the weekend. On the other hand, retail peaks typically occur during the afternoon and over the weekend whilst residential attracts peak flows during the morning and evening during the week as well as over the weekend.

8.3.24 As such, assessments have been conducted during each of the weekday morning, weekday evening and Saturday midday peak periods. The assessments assume the highest hourly flows through the junction during a given period, with the morning peak period from 07h00 – 10h00, the evening peak from 16h00 – 19h00 and the Saturday peak 12h00 – 17h00. The highest hourly flows during the period have been adopted.

Study Network

8.3.25 The highway network in the vicinity of the Site, along with the wider highway network in Southall suffers from congestion during the day, due to general commuter and shopping traffic along with ongoing activity in the town centre. The strategic highway network, on the other hand, tends to flow better outside of the typical commuter peak periods.

8.3.26 The study network (see Figure 8.1) has been discussed with the various highway authorities and has resulted in the following junctions being assessed:

- M4 J3 (signalised roundabout)
- A312 / Hayes Road (Bulls Bridge Roundabout) (signalised roundabout)
- A312 / Pump Lane (priority left-IN, left-OUT junction)
- A312 / Bilton Way (priority left-IN, left-OUT junction)
- Pump Lane / Bilton Way (mini-roundabout)
- A312 / A4020 Uxbridge Road (signalised roundabout)
- A4020 The Broadway / South Road (signalised junction)
- South Road / Beaconsfield Road / Park Avenue (signalised junction)
- South Road / Merrick Road / The Green (roundabout)

Capacity Assessments

8.3.27 The capacity assessments have been undertaken using industry standard modelling tools, with signalised junctions assessed using TRANSYT, priority junctions using PICADY and roundabouts using ARCADY.

8.3.28 The following assessments have been conducted for each of the weekday morning, weekday evening and Saturday peak hours;

- Observed Scenario
- Start Year Base Scenario (2010)
- Year 5 Base Scenario (2015)
- Year 5 Development Scenario with No Highway Improvement (2015)
- Year 5 Development Scenario with Highway Improvement (2015)
- Year 10 Base Scenario (2020)
- Year 10 Development Scenario with No Highway Improvement (2020)
- Year 10 Development Scenario with Highway Improvement (2020)
- Year 15 Base Scenario (2025)
- Year 15 Development Scenario No Highway Improvement (2025)
- Year 15 Development Scenario with Highway Improvement (2025)

Significance Criteria

8.3.29 The Institute of Environmental Management and Assessment (hereafter referred to as IEMA) has published ‘Guidelines for the Environmental Assessment of Road Traffic’. The purpose of the guidelines is to provide a systematic, consistent and comprehensive approach to the assessment of the environmental effects of traffic associated with major new development projects.

8.3.30 IEMA guidelines refer to the Department of Transport's 'Manual of Environmental Appraisal' (DOT, 1983), which suggests that changes in traffic flow of 30%, 60% and 90% would be likely to produce 'slight', 'moderate' and 'substantial' changes respectively. It is advised that these broad indicators should be used with care and regard paid to specific local conditions.

8.3.31 The guidelines advise the use of a 'check-list' of potential effects covering noise; vibration; visual impact; severance; driver delay; pedestrian delay; pedestrian amenity; accidents and safety; hazardous loads; air pollution; dust and dirt; ecological impact; and heritage and conservation areas.

8.3.32 The guidelines acknowledge that for many developments some of the effects listed may not be widely relevant, but suggest that reasons should be provided for any exclusion.

8.3.33 Generally this assessment follows the methodology advocated by IEMA.

8.3.34 Several of the potential effects are considered in detail elsewhere within the ES. In particular, the effects of noise and vibration are assessed in Chapter 9, air quality (including dust) in Chapter 10, visual impacts in Chapter 11 and ecology in Chapter 14. Accordingly, this chapter focuses on the remaining potential impacts of severance, driver delay, pedestrian delay, pedestrian amenity along with accidents and safety.

Severance

8.3.35 Severance is defined as the perceived division that can occur within a community when it becomes separated by a major traffic artery and describes a series of factors that separate people from places and other people. Such division may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by the road itself.

8.3.36 The measurement and prediction of severance is difficult, but relevant factors include road width, traffic flow, speed, the presence of crossing facilities and the number of movements across the affected route.

Driver Delay

8.3.37 IEMA guidelines note that driver delay to non-development traffic can occur at several points on the network, although the effects are only likely to be significant when the traffic on the highway network is predicted to be at or close to the capacity of the system, which is the case in and around Southall town centre for long periods of the day.

8.3.38 Values for delay are determined by the use of the Department for Transport (DfT) computerised junction assessment packages which estimate vehicle time and delays through junctions.

8.3.39 ARCADY is the industry standard modelling tool for assessing roundabout junctions. The measure of significance when using ARCADY is whether the Ratio of Flow to Capacity (RFC) exceeds 0.85 on any link. If it does, this indicates that there will start to be queuing and delay as the junction approaches its theoretical capacity. In urban networks, RFC's in excess of 0.85 are a common and accepted occurrence.

8.3.40 PICADY is the industry standard modelling tool for assessing priority junctions. As with ARCADY, the measure of significance when using PICADY is whether the RFC exceeds 0.85 on any link. If it does, this indicates that there will start to be queuing and delay as the junction approaches its theoretical capacity. In urban networks, RFC's in excess of 0.85 are a common and accepted occurrence.

8.3.41 TRANSYT is the industry standard modelling tool for assessing signalised junctions in urban environments. The measure of significance when using TRANSYT is whether the Degree of Saturation (DoS) exceeds 90% on any link. If it does, this indicates that there will start to be queuing and delay as the junction approaches its theoretical capacity. In urban networks, DoS in excess of 90% are a common and accepted occurrence.

Pedestrian Delay

8.3.42 IEMA guidelines note that changes in the volume, composition and or speed of traffic may affect the ability of people to cross roads. Typically, increases in traffic levels result in increased pedestrian delay, although increased pedestrian activity itself also contributes. The guidelines do not set any thresholds, recommending instead that assessors use their judgement to determine the significance of the impact.

Pedestrian Amenity

8.3.43 IEMA guidelines define pedestrian amenity as the relative pleasantness of a journey, which as with pedestrian delay is affected by traffic volumes and composition along with pavement width and pedestrian activity. The guidelines suggest tentative thresholds of significance would be where the traffic flow is halved or doubled.

Fear and Intimidation

8.3.44 IEMA guidelines note that a further impact traffic may have on pedestrians is fear and intimidation, the impact of which is dependent on volume of heavy vehicle traffic, its proximity to people or a lack of protection caused by such factors as narrow pavements.

Accidents and Safety

8.3.45 IEMA guidelines do not include any definition in relation to accidents and safety, suggesting that professional judgement will be needed to asses the implications of local circumstance, or factors which may increase or decrease the risk of accidents.

Definition of Significance

8.3.46 The effects are either long or short term, typically with the effect of construction traffic deemed short term and those associated with the operational stages of the Scheme as long term.

8.4 Baseline Conditions

Pedestrian Facilities

8.4.1 There is an excellent network of pedestrian footways in the vicinity of the Site. All of the roads include pedestrian footpaths on both sides and there are pedestrian facilities at all of the key signalised junctions, along with pelican and zebra crossings across major roads.

8.4.2 Footpaths along South Road vary in width, being approximately 2m wide outside Southall Station, up to nearly 6m in places through the town centre. However, infrastructure such as bus shelters, lamp posts along with the condition and activity outside shops reduces capacity and levels of service, whilst pedestrian flows are relatively high throughout the day.

8.4.3 Footpaths along the A4020 The Broadway are typically 4m to 5m wide. However, as with facilities along South Road, capacity is reduced due to street furniture and activity outside the shops.

8.4.4 Footpaths adjacent to the streets north of Beaconsfield Road are typically approximately 2m wide. Unlike facilities within the town centre along South Road and the A4020, there is relatively little in the way of street furniture and pedestrian flows are typically low.

8.4.5 Routes through the Site and across the railway line are poor, with no public routes across the Site. North to south links over the railway line are limited to South Road to the east, along the Towpath to the west and via an underpass at the end of Dudley Road. The facilities at Brent Road and Dudley Road connect to The Straight and are undesirable.

Cycling Facilities

8.4.6 The London Cycle Network passes the Site along each of the northern, southern and western boundaries. The Straight is designated as a route for pedestrians and cyclists (with pedestrians

having priority), and Beaconsfield Road is designated as a route on a quiet road recommended by cyclists. Cycling is permitted on the canal towpath, although again pedestrians have priority.

8.4.7 These routes connect to the wider London Cycle Network, providing access to destinations throughout London. Other roads in the vicinity designated on the London Cycle Network include South Road over the railway, The Green, Lady Margaret Road and Broadway. However, although the roads are designated, traffic conditions are not considered ideal for cycling.

Public Transport

8.4.8 Southall is well served by public transport with rail at Southall Station and numerous bus services. However, although the mainline railway passes along the southern boundary, the Site itself is poorly served by public transport.

8.4.9 Rail services from Southall Station provide links to London Paddington (and intermediate stations) to the east, and to Reading and beyond (and intermediate stations) to the west on a regular basis Monday through Sunday. There are also direct links to Heathrow Airport via the recently introduced Heathrow Connect service.

8.4.10 There are a total of 11 bus routes that serve Southall, with the majority running along South Road to the east and Uxbridge Road to the north. The services run on a regular basis Monday through Sunday connecting to destinations in Ealing, Hounslow and Hillingdon, including Heathrow Airport.

8.4.11 Information held by London Buses in the form of Bus Origin Destination Surveys suggests that there is available capacity on the majority of the services during the week, with the exception of Route 607 which operates above its planned capacity. Further details are included in the TA (Appendix 8.1).

Highway Network

8.4.12 The local highway network (illustrated on Figure 8.1) includes strategic, distributor and local roads. Strategic roads include the M4, the A312 Hayes By-pass and the A4020 Uxbridge Road with South Road (A3005) and Merrick Road (A3005) classified as distributor roads. Beaconsfield Road, Brent Road, Park Avenue, The Straight and The Crescent are classified as local roads.

8.4.13 The M4 runs in an east to west direction to the south of the Site, connecting to London in the east and Reading and beyond in the west. It is a dual carriageway road, with two or three lanes in each direction and grade separated junctions. Currently, there is no direct access to the Site from the M4. It forms part of the trunk road network and is the responsibility of the Highways Agency (HA).

8.4.14 The A312 Hayes By-pass runs in a north to south direction to the west of the Site. It is a dual carriageway road with two lanes in each direction, widening on approaches to junctions. Two of the junctions, with the M4 and the A4020, are grade separated, with the remainder at grade. The road is the responsibility of Transport for London (TfL). There is no direct access to Site from this road.

8.4.15 The A4020 runs in an east to west direction to the north of the Site, connecting Shepherds Bush in the east with Uxbridge in the west. It is a single carriageway road varying in width, with one lane (plus bus lanes) in each direction through Southall, with signalised junctions at the South Road, Springfield Road and the A312. The road is the responsibility of TfL. It is a major bus corridor and there is limited direct vehicular access taken from the road.

8.4.16 The A3005 runs in a broadly north westerly direction to the east of the Site. It is known as South Road through Southall town centre and Lady Margaret Avenue to the north of the A4020. It carries southwards in the form of Merrick Road. It is a single carriageway road with one lane in each direction, widening on the approaches to junctions. The road is the responsibility of LB Ealing. There are several vehicular accesses into developments and car parks directly from the road, and it is a major bus corridor.

8.4.17 Park Avenue is a single carriageway road with one lane in each direction. It runs between the A4020 and South Road. The road provides access to residential and commercial properties, as well as the Gurdwara Temple at the junction with South Road.

8.4.18 Beaconsfield Road is a single carriageway road with one lane in each direction and is traffic calmed with parking permitted. The road provides access to residential properties along with several schools and commercial properties at the eastern end in the vicinity of South Road.

8.4.19 Brent Road is a single carriageway road with footpaths on both sides. The road runs from Western Road through to the London to Cardiff mainline railway line and provides access to residential properties at the southern end and commercial properties at the northern end. There is a underpass that connects to the Site that is currently used to access the Airport Parking.

8.4.20 The Crescent is a narrow single carriageway road immediately west of the South Road bridge over the London to Cardiff railway line. It provides access to residential and commercial properties to the west of South Road.

8.4.21 The Straight is a private road that runs along the southern boundary of the Site. It is a narrow single carriageway road that provides access to the operational gas holder site and associated infrastructure.

Traffic Movements

Existing Conditions

8.4.22 The roads in the vicinity of the Site experience traffic conditions typical of urban town centres in outer London, with periods of congestion during peak periods and quieter flows at other times. Traffic flow data has been obtained from a number of sources, including turning counts at key junctions and automatic traffic counts on more sensitive links, as summarised below. This data was obtained between 2003 and 2008 dates. The automatic traffic count data was used to factor-up the peak hour flows on links where 24hr data was not collected.

<u>Turning Counts</u>

- M4 – Junction 3
- A312 Hayes By-pass / Hayes Road (Bulls Bridge)
- A312 Hayes By-pass / Pump Lane
- Pump Lane / Bilton Way
- A312 Hayes By-pass / A4020 Uxbridge Road (Ossie Garvin)
- A4020 Uxbridge Road / Springfield Road
- A4020 The Broadway / South Road / Lady Margaret Avenue
- South Road / Park Avenue / Beaconsfield Road
- South Road / Merrick Road / The Green
- King Street / Havelock Road

<u>Automatic Traffic Counts</u>

- Beaconsfield Road
- A312
- Uxbridge Road
- Havelock Road
- Merrick Road

Table 8.1 Observed Traffic Flows

Link	AM Peak	PM Peak	Sat Peak	Daily
South Road at Southall Station	1,735	1,925	1,575	25,440
South Road north of Park Avenue	900	830	875	12,675
Lady Margaret Avenue	745	700	770	10,575
Park Avenue	785	700	705	10,850
Beaconsfield Road	295	625	515	8,260
Merrick Road	1,045	970	855	14,700
The Green	990	1,175	1,060	15,860
Pump Lane at A312 Underpass	495	545	595	7,310
A312 north of Pump Lane	4,450	5,480	5,200	72,650
A312 south of Pump Lane	4,785	5,690	5,360	76,650
A312 north of Ossie Garvin	4,535	4,760	5,015	68,020
A312 south of Bulls Bridge	4,305	4,885	3,970	67,520
A312 south of M4	4,370	4,390	3,650	64,090
A4020 west of Ossie Garvin	2,575	2,710	2,985	38,665
A4020 The Broadway	1,165	1,200	1,160	17,300
A4020 High Street	1,125	975	970	15,360
Brent Road	570	450	-	8,123

Base Flows

8.4.23 The base flows for the proposed year of commencement of the Development (2010) and each of the assessment years (2015, 2020 and 2025) which include growth at 0.8% per annum along with traffic associated with committed developments for the weekday morning, weekday evening and Saturday peak periods together with the average daily flows, are set out below. The committed development sites considered included the Western International Market, the Bulls Bridge Industrial Trading Estate and the UCS Site. Growth has not been applied to Brent Road flows.

8.4.24 The Airport Parking (Purple Parking) is assumed to remain on-site for the Year 5 (2015) and Year 10 (2020) assessments, and removed for the Year 15 (2025) Completed Development Scenario. The access to the Airport Parking is assumed to be from Pump Lane in both the Year 5 and 10 assessment scenarios.

Table 8.2 2010 Base Traffic Flows

Link	AM Peak	PM Peak	Sat Peak	Daily
South Road at Southall Station	1,827	1,820	1,628	26,476
South Road north of Park Avenue	946	870	905	13,181
Lady Margaret Avenue	781	736	794	11,002
Park Avenue	820	736	726	11,293
Beaconsfield Road	529	654	531	8,598
Merrick Road	1,093	1,014	881	15,298
The Green	1,041	1,232	1,092	16,501
Pump Lane at A312 Underpass	522	576	615	7,904
A312 north of Pump Lane	4,812	5,916	5,447	75,605
A312 south of Pump Lane	5,166	6,141	5,614	79,770
A312 north of Ossie Garvin	4,903	5,161	5,485	70,784
A312 south of Bulls Bridge	4,968	5,612	4,162	73,937
A312 south of M4	4,555	4,575	3,805	66,695
A4020 west of Ossie Garvin	2,701	2,834	3,080	40,190
A4020 The Broadway	1,223	1,257	1,196	18,001
A4020 High Street	1,179	1,025	999	15,993
Brent Road	570	450		7,000

Table 8.3 2015 Base Traffic Flows

Link	AM Peak	PM Peak	Sat Peak	Daily
South Road at Southall Station	1,901	1,894	1,695	27,550
South Road north of Park Avenue	984	906	941	13,715
Lady Margaret Avenue	812	766	827	11,450
Park Avenue	852	765	755	11,750
Beaconsfield Road	549	683	551	8,945
Merrick Road	1,137	1,056	917	15,920
The Green	1,083	1,282	1,137	17,170
Pump Lane at A312 Underpass	542	600	656	8,225
A312 north of Pump Lane	5,003	6,141	5,800	78,675
A312 south of Pump Lane	5,265	6,395	5,979	83,010
A312 north of Ossie Garvin	5,098	5,356	5,841	73,661
A312 south of Bulls Bridge	5,105	5,831	4,681	73,120
A312 south of M4	4,736	4,759	3,958	69,405
A4020 west of Ossie Garvin	2,812	2,950	3,206	41,870
A4020 The Broadway	1,273	1,309	1,245	18,730
A4020 High Street	1,226	1,065	1,040	16,635
Brent Road	570	450	-	7,000

Table 8.4 2020 Base Traffic Flows

Link	AM Peak	PM Peak	Sat Peak	Daily
South Road at Southall Station	1,978	2,185	1,765	28,670
South Road north of Park Avenue	1,024	940	980	14,275
Lady Margaret Avenue	845	795	860	11,915
Park Avenue	890	795	785	12,230
Beaconsfield Road	570	710	575	9,310
Merrick Road	1,185	1,100	955	16,565
The Green	1,125	1,335	1,180	17,870
Pump Lane at A312 Underpass	565	625	680	8,560
A312 north of Pump Lane	5,205	6,385	6,035	81,875
A312 south of Pump Lane	5,585	6,630	6,290	86,385
A312 north of Ossie Garvin	5,301	5,569	6,074	76,655
A312 south of Bulls Bridge	5,371	6,060	4,602	80,068
A312 south of M4	4,925	4,950	4,115	72,225
A4020 west of Ossie Garvin	2,925	3,075	3,335	43,570
A4020 The Broadway	1,325	1,360	1,295	19,495
A4020 High Street	1,275	1,110	1,080	17,310
Brent Road	570	450	-	7,000

Table 8.5 2025 Base Traffic Flows

Link	AM Peak	PM Peak	Sat Peak	Daily
South Road at Southall Station	2,060	2,050	1,834	29,837
South Road north of Park Avenue	1,066	980	1,020	14,855
Lady Margaret Avenue	879	829	895	12,400
Park Avenue	924	828	818	12,725
Beaconsfield Road	596	738	598	9,689
Merrick Road	1,232	1,144	994	17,239
The Green	1,173	1,389	1,231	18,595
Pump Lane at A312 Underpass	587	649	710	8,907
A312 north of Pump Lane	5,409	6,642	6,276	85,202
A312 south of Pump Lane	5,808	6,895	6,468	89,895
A312 north of Ossie Garvin	5,512	5,791	6,318	79,770
A312 south of Bulls Bridge	5,583	6,299	4,783	83,322
A312 south of M4	5,127	5,150	4,283	75,161
A4020 west of Ossie Garvin	3,047	3,201	3,471	45,342
A4020 The Broadway	1,379	1,416	1,348	20,285

A4020 High Street	1,328	1,154	1,126	18,012
Brent Road	570	450	-	7,000

Accidents

8.4.25 Accident statistics for all of the roads in the immediate vicinity of the proposed accesses were obtained from Transport for London for the three year period up to the end of October 2007. This data covers all of the roads in the immediate vicinity of the Application Site along with records at junctions along the A312.

8.4.26 There were a total of approximately 50 accidents recorded on the roads in the vicinity of the Eastern Access, with approximately 20% resulting in severe injuries. In addition, there were 70 accidents recorded along the A312 during the three year period, with 48 occurring in the vicinity of M4 J3, along with 12 at Bulls Bridge and 10 in the vicinity of Pump Lane. Full details are included in Section 2 of the TA (Appendix 8.1).

8.5 Scheme Proposals and Phasing

8.5.1 A full description of the Scheme is set out in Chapter 3: Site and Proposed Development. In summary, it includes up to 3,750 residential dwellings, 21,800m^2 of retail, a cinema, a hotel and conference centre together with community facilities. The development will be phased and construction is expected to last for approximately 15 years, from remediation, demolition and excavation through to construction, fit out and occupation of the final buildings.

8.5.2 It is anticipated that the build out will commence in the east, with early occupied phases accessed from Beaconsfield Road, working westwards away from Southall Station. Construction traffic will approach the Site from the west via the A312 and Pump Lane, along a new road that will eventually form the main east to west vehicular link. The approach will be to limit the amount of imported material along with spoil taken from the Site, by treating and using spoil material wherever possible on Site. The only spoil taken from Site will be soil requiring off-site remediation processes or disposal.

8.5.3 The proposals include significant off-site highway improvement measures to mitigate the potential impact associated with the completed Scheme. It is envisaged that these, as with the Main Site, will be phased with appropriate traffic management measures introduced to reduce potential driver delay.

Year 5 (2015)

8.5.4 It is anticipated that by the end of Year 5 (2015) approximately 1,000 residential dwellings along with 10,000m^2 of Retail, the Supermarket (5,850m^2), the Cinema (4,700m^2) and the Office (3,500m^2) elements will be constructed and occupied. Vehicular and cycle / pedestrian accesses will be provided through connections to the A312 via Pump Lane, South Road and Beaconsfield Road, and off-site highway works will be completed at Junction 3 (J3) of the M4.

8.5.5 The airport parking operated by Purple Parking is assumed as operational during this period. Initially, vehicular access to the airport parking will be via Brent Road as per existing, with traffic diverted to the Pump Lane access as soon as it is made available.

8.5.6 Table 8.6 includes a summary of the estimated trips by each mode for the occupied development at Year 5. Further details of these arrangements, including the anticipated public transport changes are included in the TA.

Table 8.6 Estimated Two-way Trips by Mode and Time of Day

Mode	AM Peak	PM Peak	Sat Peak	Daily
Walking	304	616	759	10,142
Cycling	46	90	113	684
Car Driver	812	1,632	1,817	17,975
Car Passenger	188	779	1,008	12,255
Public Transport	360	667	732	6,384

8.5.7 Table 8.7 includes a summary of the estimated changes in two-way vehicular flows on the various links for the weekday morning, weekday evening plus Saturday peak hours along with changes in the average weekday daily flows. Details on the derivation of the flows are included in the TA.

8.5.8 During the initial stages, vehicular movements will solely be associated with construction traffic, which will access the Site from the A312 via Pump Lane. As development plots are completed, there will be a mixture of development and construction traffic, with development traffic required to use connections to South Road and Beaconsfield Road until the M4 J3 works are complete, after which the connection to the A312 via Pump Lane will be made available.

8.5.9 Construction traffic movements during peak periods is likely to be restricted to light vehicles associated with the movement of construction workers, with HGV movements not permitted. For assessment purposes it has been assumed that construction traffic flows are equivalent to 10% of the completed 2025 development flows.

Table 8.7 Change in Two-way Vehicular Flows (2015)

Link	AM Peak (% Change)	PM Peak (% Change)	Sat Peak (% Change)	Daily (% Change)
South Road at Southall Station	134 (7.1%)	340 (17.0%)	403 (23.8%)	4827 (17.5%)
South Road north of Park Avenue	93 (9.5%)	235 (26.0%)	260 (27.6%)	3095 (22.6%)
Lady Margaret Avenue	62 (7.6%)	165 (1.5%)	190 (23.0%)	2245 (19.6%)
Park Avenue	47 (5.5%)	94 (12.3%)	104 (13.8%)	1248 (10.6%)
Beaconsfield Road	60 (10.9%)	182 (26.6%)	233 (42.3%)	2625 (29.3%)
Merrick Road	78 (6.9%)	174 (16.5%)	203 (22.1%)	2457 (15.4%)
The Green	57 (5.2%)	166 (12.9%)	201 (17.7%)	2370 (13.8%)
Pump Lane at A312 Underpass	90 (16.6%)	201 (33.5%)	181 (27.6%)	2057 (25.0%)
A312 north of Pump Lane	91 (1.8%)	107 (1.7%)	101 (1.7%)	1024 (1.3%)
A312 south of Pump Lane	182 (3.5%)	163 (2.6%)	102 (1.7%)	1183 (1.4%)
A312 north of Ossie Garvin	63 (1.2%)	73 (1.4%)	55 (0.9%)	608 (0.8%)
A312 south of Bulls Bridge	174 (3.4%)	152 (2.6%)	100 (2.1%)	1124 (1.5%)
A312 south of M4	79 (1.7%)	71 (1.5%)	34 (0.9%)	462 (0.6%)
A4020 west of Ossie Garvin	34 (1.2%)	39 (1.2%)	57 (1.8%)	625 (0.9%)
A4020 The Broadway	16 (1.3%)	50 (3.8%)	65 (5.2%)	726 (1.7%)
A4020 High Street	14 (1.1%)	17 (1.6%)	6 (0.6%)	99 (0.6%)
Brent Road	-190 (-33%)	-225 (-50%)	-175	-2,590 (-37%)

Year 10 (2020)

8.5.10 By the end of Year 10 (2020), the programme anticipates the construction and occupation of a further 1,850 dwellings and 5,750m^2 of Retail, the Hotel (9,650m^2), Conference Centre (3,000m^2), School (3,050m^2) and health facilities (2,550m^2) along with the construction of the Minet Country Park Footbridge, the widening of the South Road bridge and the completion of off-site highway works on the A312 corridor at the Bulls Bridge roundabout. The core internal highway network of the Site and High Street retail will be completed during this period. The airport parking operation is assumed to cease at the start of the period with the onset of the second phase of remediation.

8.5.11 Table 8.8 includes a summary of the estimated trips by each mode for the occupied development, including the trips associated with the Year 5 Assessment. Further details are included in the TA.

Table 8.8 Estimated Two-way Trips by Mode and Time of Day

Mode	AM Peak	PM Peak	Sat Peak	Daily
Walking	1,129	900	1,349	8,554
Cycling	103	140	181	652
Car Driver	2,051	2,797	2,870	14,566
Car Passenger	602	1,153	1,695	9,465
Public Transport	1,276	1,467	1,590	6,663

8.5.12 Construction traffic will continue to use the western access via Pump Lane and the A312, whilst development traffic will be able to use all of the available accesses. There will be a mixture of construction traffic as individual plots are developed out, from HGVs delivering materials through to specialists associated with the fitting out. As with the Year 5 Assessment, the volume of construction traffic has been assumed to be equivalent to 10% of the overall completed 2025 development flows.

8.5.13 Table 8.9 includes a summary of the estimated changes in two-way vehicular flows on the various links for the weekday morning, weekday evening plus Saturday peak hours along with changes in the average weekday daily flows. The changes include traffic associated with all of the development completed to date (i.e. inclusive of Year 5 flows) with the percentage change relative to the 2020 base year flows.

8.5.14 The percentage changes do not anticipate the effects of changes to existing travel patterns, i.e. as drivers change mode or time of travel or use alternative routes. As such, it is envisaged that some non-essential traffic will be displaced by local traffic associated with the Scheme and the actual increases will be lower. Further details on the derivation of the flows are included in the TA.

Table 8.9 Change in Two-way Vehicular Flows (2020)

Link	AM Peak (% Change)	PM Peak (% Change)	Sat Peak (% Change)	AAWT (% Change)
South Road at Southall Station	202 (10.2%)	413 (20.9%)	448 (25.4%)	5031 (17.5%)
South Road north of Park Avenue	169 (16.5%)	`306 (32.6%)	333 (34.0%)	3250 (22.8%)
Lady Margaret Avenue	105 (12.4%)	209 (26.3%)	222 (25.8%)	2362 (19.8%)
Park Avenue	71 (8.0%)	122 (15.3%)	123 (15.7%)	1286 (10.5%)
Beaconsfield Road	108 (18.9%)	232 (32.7%)	269 (46.8%)	2894 (31.1%)
Merrick Road	107 (9.0%)	215 (19.5%)	227 (23.8%)	2574 (15.5%)
The Green	94 (8.4%)	199 (14.9%)	221 (18.7%)	2457 (13.7%)
Pump Lane at A312 Underpass	216 (38.2%)	413 (66.1%)	357 (52.5%)	3374 (39.4%)
A312 north of Pump Lane	208 (4.0%)	241 (3.8%)	217 (3.6%)	2055 (2.5%)`
A312 south of Pump Lane	479 (8.6%)	483 (7.3%)	329 (5.2%)	3952 (4.6%)
A312 north of Ossie Garvin	176 (3.3%)	185 (3.3%)	136 (2.2%)	1550 (2.0%)
A312 south of Bulls Bridge	461 (8.6%)	463 (7.6%)	325 (7.1%)	3835 (4.8%)
A312 south of M4	211 (4.3%)	207 (4.2%)	114 (2.8%)	1518 (2.1%)
A4020 west of Ossie Garvin	55 (1.9%)	60 (2.0%)	107 (3.2%)	587 (1.3%)
A4020 The Broadway	20 (1.5%)	54 (4.0%)	76 (5.9%)	663 (3.4%)
A4020 High Street	41 (3.2%)	41 (3.7%)	17 (1.6%)	220 (1.3%)
Brent Road	-190 (-33%)	-225 (-50%)	-175	-2,590 (-37%)

Year 15 – Principal Assessment Year (2025)

8.5.15 The programme includes the construction of a further 900 dwellings during the final 5 years, along with the phasing out of the airport parking. Table 8.10 includes a summary of the estimated trips by each mode for the Principal Assessment Year, including the trips associated with the Year 10 Assessment. Further details are included in the TA.

Table 8.10 Estimated Two-way Trips by Mode and Time of Day

Mode	AM Peak	PM Peak	Sat Peak	Daily
Walking	1,352	1,024	1,577	18,614
Cycling	127	166	206	1,515
Car Driver	2,458	3,121	3,134	31,917
Car Passenger	699	1,240	1,933	20,424
Public Transport	1,565	1,678	1,789	14,762

8.5.16 Construction traffic will continue to use the western access via Pump Lane and the A312 during the period, whilst development traffic will be able to use all of the available accesses. As with the Year 5 assessment, there will be a mixture of construction traffic as individual plots are developed out. Although the volume of construction traffic is likely to be lower during this period, it has been assumed as constant and again equivalent to 10% of the overall completed 2025 development flows.

8.5.17 Table 8.11 includes a summary of the estimated changes in two-way vehicular flows on the various links for the weekday morning, weekday evening plus Saturday peak hours along with changes in the average weekday daily flows. The changes include traffic associated with all of the development completed to date (i.e. inclusive of Year 10 flows) with the percentage change relative to the 2025 base year flows.

Table 8.11 Change in Two-way Vehicular Flows (2025)

Link	AM Peak (% Change)	PM Peak (% Change)	Sat Peak (% Change)	Daily (% Change)
South Road at Southall Station	242 (11.7%)	426 (20.8%)	474 (25.8%)	5317 (17.8%)
South Road north of Park Avenue	212 (19.9%)	333 (34.0%)	364 (35.7%)	3622 (24.4%)
Lady Margaret Avenue	127 (14.4%)	221 (26.7%)	236 (26.4%)	2514 (20.3%)
Park Avenue	95 (10.3%)	135 (16.3%)	138 (16.9%)	1442 (11.3%)
Beaconsfield Road	127 (21.3%)	236 (32.0%)	291 (48.7%)	3064 (31.6%)
Merrick Road	134 (10.9%)	224 (19.6%)	243 (24.4%)	2756 (16.0%)
The Green	107 (9.1%)	202 (14.5%)	232 (18.8%)	2561 (13.8%)
Pump Lane at A312 Underpass	264 (45.0%)	494 (76.1%)	420 (59.2%)	4036 (45.3%)
A312 north of Pump Lane	287 (5.3%)	290 (4.4%)	262 (4.2%)	2557 (3.0%)
A312 south of Pump Lane	617 (10.6%)	590 (8.6%)	387 (6.0%)	4818 (5.4%)
A312 north of Ossie Garvin	229 (4.2%)	225 (3.9%)	158 (2.5%)	1884 (2.4%)
A312 south of Bulls Bridge	595 (10.7%)	565 (9.0%)	381 (8.0%)	4674 (5.6%)
A312 south of M4	276 (5.4%)	261 (5.1%)	140 (3.3)	1928 (2.6%)
A4020 west of Ossie Garvin	82 (2.7)	70 (2.2%)	136 (3.9%)	825 (1.8%)
A4020 The Broadway	23 (1.7%)	53 (3.7%)	85 (6.3%)	707 (3.5%)
A4020 High Street	55 (4.1%)	54 (4.7%)	28 (2.5%)	333 (1.8%)
Brent Road	-190 (-33%)	-225 (-50%)	-175	-2,590 (-37%)

8.6 Potential Effects

8.6.1 The potential effects of the proposed Scheme will change as the Site is developed out. Currently the Site along with the A312 Hayes By-pass, Grand Union Canal and the London to Cardiff mainline railway line all act as significant barriers between Southall Green, Southall Broadway and Hayes.

Severance

8.6.2 Severance results from the creation of new barriers such as roads coupled with increased traffic flows along existing routes.

8.6.3 The redevelopment of the Site will result in the creation of a network of pedestrian, cycle and vehicular routes across the Site with connections as appropriate to the north, south, east and west along with increased traffic flows on the existing surrounding highway network.

8.6.4 Whereas the new roads within the Site will act as barriers to pedestrian and cycle movements, crossing facilities will be provided at appropriate locations to cater for anticipated demand levels. Developing the Site in itself will result in the removal of an existing significant barrier to the movement of people and is considered to be a **substantial benefit**.

8.6.5 In terms of Scheme traffic, increases in flows on the surrounding highway network are anticipated to be highest when the Site is fully developed.

8.6.6 The highest increases in flows are anticipated on the A312 Hayes By-pass to the west of the Site as drivers use the route to access the strategic highway network. However, whilst the flow increases

are high, the percentage changes are relatively low (in the order of up to 10%) and the proposals include improved pedestrian facilities under the A312 at Pump Lane.

8.6.7 Traffic flows along the South Road corridor to the east are anticipated to increase by up to circa 33% should the development flows materialise. The proposals include the creation of additional road capacity through the widening of the South Road bridge at Southall Station and alterations to junction signal timings along with improved pedestrian facilities.

8.6.8 The greatest percentage changes will be associated with development flows on Beaconsfield Road and Pump Lane where increases in the region of 50% and 75% respectively are anticipated. Whereas pedestrian movements along Pump Lane at the A312 are low, pedestrian activity along Beaconsfield Road is greater, particularly during peak periods with residential properties on both sides along with several schools. However, the majority of the additional flows along Beaconsfield Road are anticipated to originate from the Southall Broadway area as residents travel south into the Site rather than northbound on to the A420 The Broadway.

Driver Delay

8.6.9 The majority of the junctions in the vicinity of the Site currently operate at or near capacity during the peak periods and for long periods throughout the day, particularly along the A312, South Road and the A4020 (Uxbridge Road) corridors through Southall town centre.

8.6.10 The proposals include significant highway improvements to provide access to the Site along with off-site mitigation measures, which will be phased as the Scheme is built out. As such, there will be increased driver delay associated with the Development traffic along with the highway improvements as they are implemented. The programme of highway works includes increasing capacity at Junction 3 (J3) of the M4 and Bulls Bridge junctions along with the widening of the South Road bridge and the construction of the Eastern Access (on to South Road) and Western Access (on to the A312), all of which will involve increasing the capacity through the junctions. There will be increased delay to drivers during the works, which can be considered as a **substantial adverse temporary** effect.

8.6.11 The traffic associated with the Scheme will result in increased traffic flows on the majority of the roads in the vicinity of the Site. Once the highway improvements summarised above are complete, the assessments (within the TA at Section 8.10) suggest that the effect of the development flows will be fully mitigated along the A312 corridor, with increased delay along the South Road corridor should development flows be realised. However, the assessments assume that all of the trips are new to the local highway network, which is considered to represent a worst case scenario as many trips will be diverted from less convenient existing destinations.

Effects on Cyclists and Pedestrians

8.6.12 The effect on cyclists and pedestrians is defined as where changes in facilities, along with the composition and quantum of traffic, effect the duration or pleasantness of a journey.

8.6.13 The network of cycleways and footpaths across the Site facilitates significant reductions in journey times along the north-south and east-west corridors, linking Southall Green with Southall Broadway, as well as connections to the Minet Country Park and the Springfield Road Industrial Estate. These will enable people travelling between destinations on the opposite side of the Site the opportunity to travel through the Site as opposed to around the Site. Although there will be new roads to cross which will introduce an element of delay, crossings will be introduced at appropriate locations. Consequently, redevelopment of the Site will represent a **substantial benefit** to cyclists and pedestrians.

8.6.14 Externally, traffic flows are anticipated to increase on all of the roads to varying degrees and highway works are proposed at key junctions to mitigate the potential impact associated with the development traffic flows. The highway improvements will result in some wider junctions and hence longer crossing times, whilst alterations to signal timings may affect pedestrian capacity.

8.6.15 Within Southall town centre, the proposals include the widening of the South Road southern approach to the Park Road / Beaconsfield Road junction along with the relocation of the existing pedestrian crossing outside Southall Station to the Eastern Access. These alterations will result in