

Metropolitan Thames Valley

**Former Shredded Wheat Factory (South Side),
Welwyn Garden City**

**Environmental Statement: Volume 3,
Non-Technical Summary**





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CONTENTS

PAGE

1	Introduction	1
2	The Site and Surroundings	2
3	Environmental Impact Assessment Methodology	4
4	Alternatives and Design Evolution	10
5	The Proposed Development	13
6	Development Programme and Construction	20
7	Transport and Access	36
8	Air Quality	40
9	Wind Microclimate	42
10	Noise and Vibration	44
11	Landscape and Visual Amenity	46
12	Ecology and Nature Conservation	50
13	Water Quality, Hydrology & Flood Risk	52
14	Soils, geology and contaminated land	54
15	Cultural Heritage	56
16	Socio-Economics	59
17	Climate Change and Greenhouse gases	61
18	Waste Management	64



1 INTRODUCTION

1.1 This document provides a Non-Technical Summary of the findings of the Environmental Statement (ES), which has been prepared on behalf of Metropolitan Thames Valley to accompany a planning application for a proposed development at the South Side site of the former Shredded Wheat Factory, Welwyn Garden City, (hereafter referred to as the 'Site').

1.2 The ES identifies and records the results of assessments of the construction and operational phases of the Proposed Development and considers the potentially significant environmental effects the Proposed Development will create. The ES suggests a range of measures to mitigate the identified effects and, where opportunities exist, to introduce improvement measures.

1.3 This report provides a Non-Technical Summary of the ES findings.

2 THE SITE AND SURROUNDINGS

2.1 The Site is located to the East of Welwyn Garden City town centre in Hertfordshire and falls within the administrative area of Welwyn Hatfield Borough Council (WHBC).

2.2 The Site measures circa 2.37 ha in size and forms the southern portion of the wider former Shredded Wheat Factory, Broadwater Road in Welwyn Garden City. It is immediately bound to the west by the A1000 Broadwater Road, to the north by Hydeway and the North Side site beyond, and to the west it is separated from the railway line by Curier Logistics distribution centre. The southern site boundary adjoins Phase One of the extant planning permission for the wider Shredded Wheat Factory site which is currently under construction.

2.3 The planning application boundary is shown in Figure 2.1.

Figure 2.1: Site Boundary





2.4 The Site is currently clear of buildings following substantial demolition and clearance in connection with the implementation of planning permission 2018/0171/MAJ.

2.5 The Site is in a sustainable location, well connected to public transport and community facilities / amenities located in Welwyn Garden City town centre to the west. Welwyn Garden City train station is located adjacent to the west of the Site and serves the East Coast Mainline rail services with frequent services to Stevenage (10 minutes), London Kings Cross (23 minutes), Moorgate (47 minutes) and Cambridge (57 minutes). In addition, the Site benefits from a well-connected bus network which provides services to the wider area. The nearest bus stop is located on Broadwater Road.

2.6 The surrounding area comprises a variety of uses and building types, including low level industrial and commercial / business uses to the north and east, and Welwyn Garden City train station and town centre to the west. To the south is largely residential in character.

2.7 The Site is not located within a Conservation Area, however, it is within close proximity to the Welwyn Garden City Conservation Area, separated by the East Coast Mainline railway. The Welwyn Garden City Conservation Area is located approximately 40m west of the Site.

2.8 The Site is not located within an Area of Archaeological Significance. However, the adjacent North Side site does include the Grade II Listed Nabisco Shredded Wheat Factory and a number of associated factory buildings within its curtilage. The Grade II Listed Office Block of the Roche Products Factory is located to the south of the Site, beyond the Phase One South Side site. The Grade I listed Hatfield House and Garden, a Registered Park and Garden is located approximately 4km to the south of the Site.

2.9 The Site is not covered by any statutory or non-statutory designated ecological sites. The Sherradspark Wood Local Nature Reserve is located approximately 875m to the northwest of the Site.

2.10 The Site lies within an area defined by the Environment Agency as Flood Zone 1 (<0.1% risk of flooding in any one year).

2.11 The Site is not located within a designated Air Quality Management Area.

2.12 The demolition of the existing buildings on-site has been completed.



3 ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY

3.1 This ES is submitted as a requirement of the EIA Regulations. The key requirements of the EIA Regulations with regards to the assessment methodology are as follows:

- Provision of a description of the relevant aspects of the current state of the environment (baseline scenario) and future baseline scenario;
- Description of the likely significant effects of the development on the environment resulting from:
 - a) The construction of the development, including where relevant demolition works;
 - b) The use of natural resources;
 - c) The emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances and disposal and recovery of waste;
 - d) The risks to human health, cultural heritage or the environment due to accidents or disasters;
 - e) The cumulation of effects with other existing or approved projects; and
 - f) The impact of the project on climate and the vulnerability of the project to climate change.
- Description of methods used to assess the significant effects and a description of the measures envisaged to avoid, prevent, reduce or offset identified significant adverse effects on the environment;
- Description of the expected significant adverse effects of the development on the environment from the vulnerability of the development to risks of major accidents or disasters where relevant.

3.2 The main objectives of the ES comprise:

- Establishing the existing baseline;
- Determining environmental conditions. This task was divided into two phases:
 - i) collection and review of existing data relating to the Site, including a review of information held by statutory and non-statutory consultees; and
 - ii) the enhancement of existing data, where necessary with information collected through site investigation and surveys.
- identifying, predicting and assessing the significance of the environmental impacts including beneficial, adverse, direct, indirect, long term, medium term,



short term, temporary, permanent and cumulative impacts which could be expected as a result of the development proposals on those environmental issues that were considered to be potentially significant during the scoping process; and

- determining mitigation and management measures, which would be required in order to prevent, reduce or remedy any significant adverse effects along with consideration of enhancement measures which could be implemented to ensure positive benefits as a result of these proposals.

CONSULTATION

3.3 Pre-application consultation is an essential part of the EIA process and has been used to:

- identify available baseline data and the need for any further field surveys; and
- identify the main environmental issues that need to be assessed in detail.

3.4 Both statutory and non-statutory consultees have been consulted as part of the EIA. In addition, the Applicant is committed to consultation with local interested residents and parties regarding the development proposals.

3.5 Before and during the Outline Application for the wider development (Planning Reference 6/2018/0171/MAJ), detailed consultation was undertaken with local residents, key stakeholders and Welwyn Hatfield Borough Council (WHBC).

3.6 Four pre-application meetings and two design workshops were undertaken with WHBC since October 2019. As part of the pre-application process, the Applicant has also undertaken public consultation with the local communities. Pre-application consultation with the local community has included a number of public consultation activities. The feedback received has informed and shaped the proposals.

SCOPING THE EIA

3.7 The purpose of an EIA scoping exercise is to ensure that all relevant environmental issues with respect to the Proposed Development are identified from the outset and to confirm that the EIA process would conform to the requirements of the EIA Regulations.

3.8 Following completion of the scoping process, a scoping report was issued to WHBC. The scoping report detailed the findings of the scoping assessment and set out the proposed



methodology for those technical areas deemed potentially likely to experience a significant effect as a result of the Proposed Development.

3.9 The Scoping Opinion from WHBC was received in November 2020 which has informed the scope of the EIA. A copy of the Scoping Opinion is included in **Volume 2, Appendix 3.1** of this ES.

PROJECT TEAM

3.10 This ES has been completed by a team of specialist consultants with suitable qualifications as illustrated in Table 3.1 below. Further details of the qualifications and experience of the consultants undertaking the technical assessments are included in the statement of competence in **ES Volume 2, Appendix 3.2:**

Table 3.1: Consultant Team

Section	Consultant
Chapters 1 to 6	Entran Ltd
Chapter 7: Transport and Access	Entran Ltd
Chapter 8: Air Quality	Entran Ltd
Chapter 9: Wind Analysis and Pedestrian Comfort	Urban Microclimate Ltd
Chapter 10: Noise and Vibration	Entran Ltd
Chapter 11: Townscape and Visual Impacts	Bradley Murphy Design Ltd
Chapter 12: Ecology and Nature Conservation	Bradley Murphy Design Ltd
Chapter 13: Water Quality, Hydrology and Flood Risk	Curtins
Chapter 14: Soils, Geology and Contaminated Land	EAME
Chapter 15: Cultural Heritage	CityDesigner
Chapter 16: Socio-Economics and Human Health	Greengage
Chapter 17: Climate Change	Greengage
Chapter 18: Waste	EAME



CUMULATIVE EFFECTS AND EFFECTS INTERACTIONS

3.11 Cumulative impacts from proposed or committed developments in the vicinity of the Proposed Development have been considered within each of the technical chapters. The proposed or committed schemes considered are identified in Table 3.2.

Table 3.2: Proposed or Committed Developments

Site Name	Distance from the Site (km)	Location	Description
Phase One South Side site (Extant Planning Application)	Adjacent to Site	Adjacent to Site (south)	Residential development
North Side Site (Extant Planning Application)	Adjacent to Site	Adjacent to Site (north)	Residential led mixed use development
North Side Site (Revised Development)	Adjacent to Site	Adjacent to Site (north)	Residential led mixed use development currently under consideration by WHDC (Ref 6/0121/0181/MAJ)
Rank Xerox Ltd, Bessemer Road, Welwyn Garden City, AL7 1HE	375m north of Site	524335, 231475	Various applications of office to residential use. Details available on Welwyn Hatfield Borough Council online planning portal.
Pall Mall Distribution Site	Adjacent to Site	Adjacent to Site (west)	Part of the Broadwater Road West allocation site. Mixed use provision.
Mercury House, 1 Broadwater Road, Welwyn Garden City, AL7 3BQ	Adjacent to the North Side site (north)	524330, 212980	Change of use from B1 office to C3 residential, construction of roof and side extensions, creation of 43 residential apartments and cycle storage compound. Permission Granted. Details available on Welwyn Hatfield Borough Council online planning portal 6/2016/2624/FULL
Former Argos Direct Distribution Depot, 1 Bessemer Road, Welwyn Garden City, AL7 1HF	Adjacent to the North Side site (north)	524260, 213120	Erection of 2 industrial / distribution buildings comprising of commercial uses. Permission Granted. Details available on Welwyn Hatfield Borough Council online planning portal 6/2015/1957/MAJ
Land East of Bessemer Road	Adjacent to the North Side site (northeast)	524450, 213050 (approx.)	Regeneration of the Site to provide a new retail Aldi foodstore with associated parking, servicing and landscaping. Permission Granted. Details available on Welwyn Hatfield Borough Council online planning portal 6/2016/1058/FULL.
51 Bridge Road East, Welwyn Garden City, AL7 1JR	400m northeast of the Site	524584, 212938	Erection of 54 residential flats consisting of (19x 1-bed and 35 2-bed), with associated access, car parking, amenity space and landscaping involving the demolition of existing office building (B1). Ref: 6/2017/2104/MAJ
Biopark Broadwater Road Welwyn Garden City AL7 3AX	120m south of the Site	523971, 212508	Demolition of existing buildings and construction of 289 residential units (Use Class C3) and community hub (Use Class E/F.2), with public realm and open space, landscaping, access, associated car and cycle parking, refuse and recycling storage and supporting infrastructure. Ref: 6/2020/3420/MAJ



Accord House 28 Bridge Road East Welwyn Garden City AL7 1HX	160m southwest of the Site	524364, 212967	Removal of roof and addition of three new floors of residential accommodation comprising 24 x 1 bed flats and 1 x 2 bed flat. Details available on Welwyn Hatfield Borough Council online planning portal 6/2018/2472/MAJ
73 Bridge Road East, Welwyn Garden City, AL7 1UT	475m to the east of the Site	524760, 212826	Erection of two new buildings comprising 111 residential apartments. Details available on Welwyn Hatfield Borough Council online planning portal 6/2020/2268/MAJ
Former Roche Building, Broadwater Road, Welwyn Garden City, Hertfordshire, AL7 3AY	75m south of the Site	524098, 212527	Erection of 209 dwellings and the retention and alteration of the existing listed building for community uses, together with associated open space, landscaping, car parking and new access arrangements Details available on Welwyn Hatfield Borough Council online planning portal N6/2010/1776/MA Change of use of former Roche Products Factory (Class B offices, research and manufacturing) to provide 34 residential units (Class C3) across basement, ground and first to third floors, with associated external alterations including excavation to the rear lightwell of southern elevation, additional and altered fenestration to the northern and southern elevations, creation of additional car parking and associated landscaping, together with internal alterations including the subdivision and reconfiguration of floorspace, the introduction of 5 new spiral staircases and provision of servicing within the building. Details available on Welwyn Hatfield Borough Council online planning portal 6/2016/1882/MA
29 Broadwater Road Welwyn Garden City AL7 3BQ	Adjacent to Site (east)	524248, 212650	Demolition of office building and erection of 128 flats with associated car parking, landscaping, amenity space, bin and cycle storage, with alterations to existing and formation of new access on Broadwater Road and alterations to the existing access on Broad Court. Details available on Welwyn Hatfield Borough Council online planning portal 6/2019/3024/MAJ
37 Broadwater Road Welwyn Garden City AL7 3AX	100m southeast of Site	524210, 212550	Construction of new build of 22 x 2 Bedroom and 2 x 3 Bedroom residential apartments with balconies and a roof garden. Layout of 26 car parking spaces, cycle parking, refuse store, internal access routes, landscaping and supporting infrastructure. Details available on Welwyn Hatfield Borough Council online planning portal 6/2018/2387/MAJ

3.12 The extant planning permission allows redevelopment of the North Side site and Phase One of the South Side. This planning permission has been implemented through the Phase One South Side site works.



3.13 A revised planning application for the North Side site is currently under consideration by WHDC. Both the development allowed under the extant planning permission and the revised application for the North Side site are considered as committed developments with regards to cumulative effects.

3.14 Consideration has also been given to the effects arising from the interaction of impacts on different environmental topic areas arising from the Proposed Development. Where relevant, the interactions are discussed within the Technical Chapters.

4 ALTERNATIVES AND DESIGN EVOLUTION

INTRODUCTION

4.1 This chapter sets out the need for the Proposed Development and the reasonable alternatives considered by the Applicant. The EIA Regulations (Ref 1.1) states that an ES should include:

“a description of the reasonable alternatives studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment.”

4.2 The following sections describe the reasonable alternatives considered by the Applicant in addition to the Proposed Development. Consideration has also been given to and commentary is provided on any alternatives or options considered by the Applicant as follows:

- The ‘No Development’ alternative;
- Alternative Sites; and
- Alternative Designs and Layouts.

‘NO DEVELOPMENT’ ALTERNATIVE

4.3 The Site has an extant consent allowing development of the Site which would be implemented if planning consent is not achieved for the current proposed masterplan. A ‘No Development’ option is therefore not considered.

ALTERNATIVE SITES

4.4 The Applicant has control of the Site and it is available for development. The Proposed Development is specific to the Site and as the Applicant has control of the land, other sites in the immediate vicinity have not been considered.

ALTERNATIVE DESIGNS AND LAYOUTS

4.5 The current Proposed Development has evolved over a number of design iterations, responding to local authority planning and development aspirations, public engagement and taking account of the Applicant's development objectives, design aspirations and prevailing environmental constraints. The evolution of the Development has therefore responded to a variety of design and environmental issues and the resultant proposals are considered to offer the most advantageous design solution.

4.6 The wider site (including the North Side site and Phase One of the South Side site) has a consent for:

4.7 *'Creation of a mixed-use quarter comprising the erection of up to 1,340 residential dwellings including 414 (31%) affordable dwellings (Use Class C3); 114 extra care homes (Use Class C2); the erection of a civic building comprising 494 m² of health (Use Class D1), 494 m² of community use (Use Class D1), 1,232 m² of office (Use Class B1) and 646 m² of retail (Class A1/A2/A3/A4/A5); alterations, additions and change of use of Grade II Listed Building and retained Silos to provide 5,096 m² of flexible business floorspace (Use Class B1), 265 m² Combined Heat and Power (Sui Generis), 2,494 m² International Art Centre (Use Class D1), 1,226 m² Gymnasium (Use Class D2), 1,576 m² of restaurant / coffee shop / bar (Use Class A1/A3/A4/A5), Creche / Day Nursery of 644 m² as well as a Network Rail TOC Building of 364 m²; plus associated car parking, access, landscaping, public art and other supporting infrastructure.'*

4.8 This consent was granted in February 2019 and remains extant. The application was made in full, the planning reference is Ref: 6/2018/0171/MAJ. This planning permission has been implemented following the start of works on the Phase One South Side site, which borders the Site to the south.

4.9 Prior to this the wider site (including the North Side site and Phase One of the South Side site) also obtained a consent for the development of an alternative scheme, however this consented scheme has not been implemented and the permission has since expired. The development was not considered to make best use of this land as required by local and national planning policy.

4.10 This previously consented scheme comprised the following:

- New build and change of use to include up to 850 dwellings, workspace, a healthcare facility, a hotel, class A1, A3 and A4 units and a community building;

- The demolition of non-original silos and factory and the refurbishment and change of use of the original silos, Production Building, Grain Store and Boiler House;
- The provision of landscaping to include a linear park, a Multi-Use Games Area (MUGA), allotments, green walls and a neighbourhood square; and
- Highway works, to include the widening of footways and the provision of cycleways to Broadwater Road and Bridge Road, together with works to Hydeway and the erection of a new footbridge from Bridge Road leading directly into the scheme.

4.11 This outline planning consent (Ref: N6/2015/0294/PP) was granted on 18th August 2017, together with an associated Listed Building Consent (N6/2015/0293/LB) and planning permission for footbridge improvements (6/2016/0457/FULL).

4.12 The design of the Proposed Development has evolved from the consented schemes. The revised design retains the garden city principles which underpinned the design approach for the consented scheme. The revised design builds on the knowledge accumulated for previous proposals, yet its design brief is inspired by new ideas and objectives as well as by previously established principles.

4.13 The blocks within the revised design remain in similar positions as in the extant application and the mews streets and central weave have been retained. The massing of the individual blocks has been amended in order to improve the number and quality of the units being proposed and respond to the wider developing context.

4.14 The footprint of Block 8 has been amended in order to open up the northern end of the weave where the South Side site meets the North Side site.

4.15 The massing has been reduced towards the southern end in order to allow more natural sunlight to the residential podium gardens which will sit in the middle of each block.

4.16 Additional roof terraces have been provided within the new blocks which provide additional residential amenity space for the future resident.

4.17 The final layout of the Proposed Development is identified in Chapter 5 and **ES Volume 2, Appendix 5**.

5 THE PROPOSED DEVELOPMENT

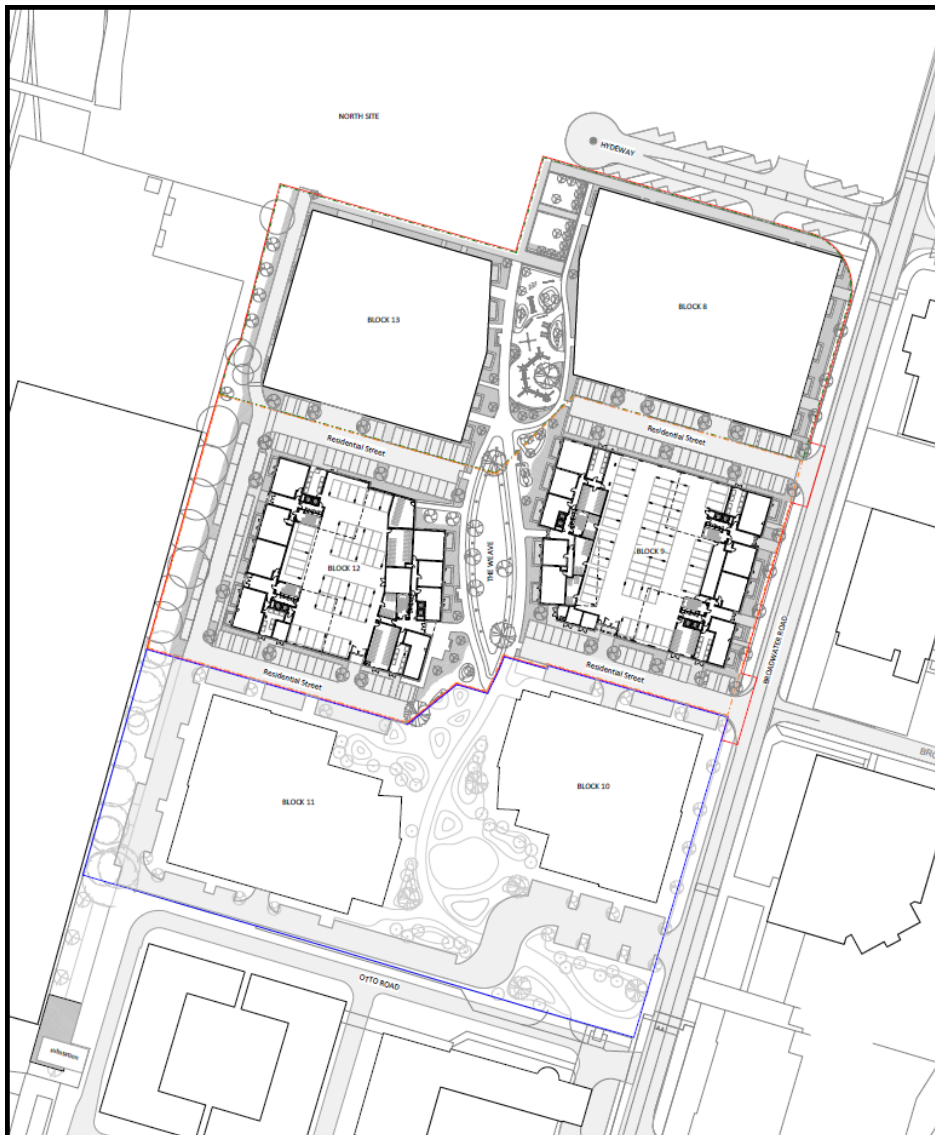
5.1 The Proposed Development comprises a site with an area of approximately 2.37 ha.

5.2 The planning application is hybrid and comprises the following:

- Full planning application for 317 dwellings (Class C3) with associated access parking, landscaping and other supporting infrastructure; and
- Outline planning application for up to 404 dwellings (Class C3) with all matters reserved except access.

5.3 The proposed site layout is presented in Figure 5.1.

Figure 5.1: Proposed Site Layout





5.4 The masterplan aims to provide legible spaces and enhance the connectivity throughout the Site, while supporting a sense of community.

Character and Appearance

5.5 The proposed residential blocks are located around the central weave linear park and have been designed in order to maximise dual aspect units and minimise north facing single aspect units.

5.6 The blocks are designed to define and activate the edges of the Site and the central park. On the outer edges, the massing and expression is more formal, whilst a more playful architecture is proposed towards the central park.

5.7 Blocks 9 and 12, Phase Two of the Proposed Development, each contain a central courtyard which sits over a single level of covered parking. These courtyards contain amenity space for the residents. Breaks in the massing towards the south allow light into these spaces.

5.8 The blocks are based around three separate residential cores, two along the perimeter and one facing the central weave. Each core has a separate entrance at ground level, access to the covered parking and podium gardens.

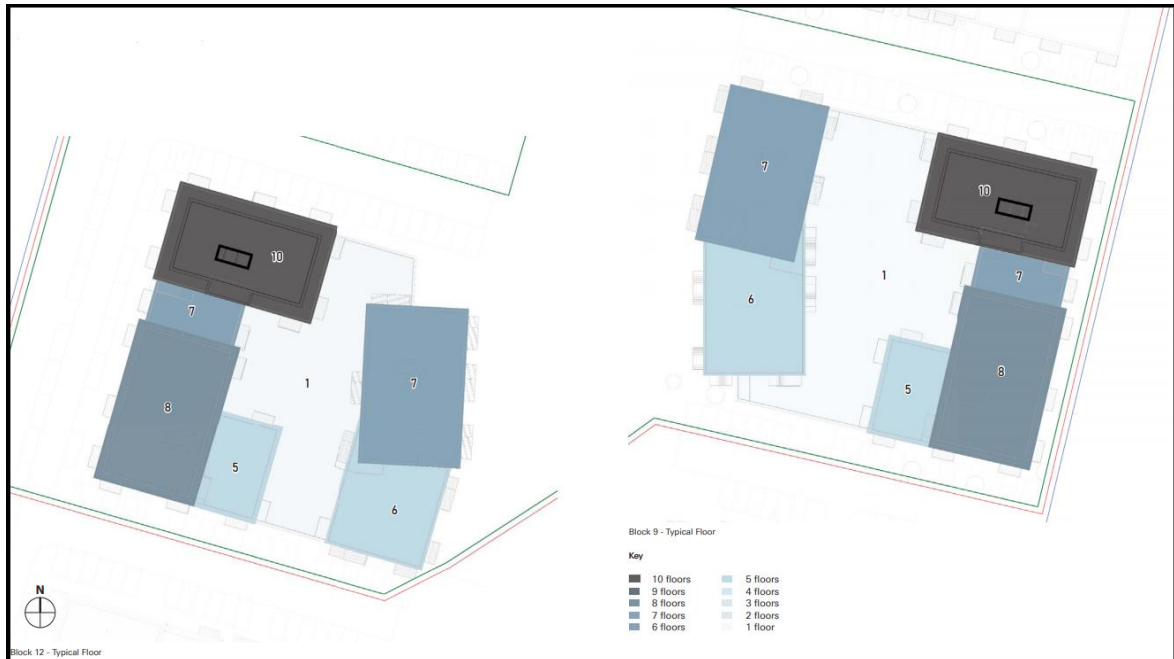
5.9 The proposals aim to maximise amenity space for the residents. In addition to the central park, there are a number of amenity spaces proposed for the resident's only. The main space is the central podium at first floor. Each core also has access to designated roof terrace which provides high level amenity space with good daylight and views. In addition to this each home has its own private external amenity in the form of a balcony or terrace.

Scale and Massing

5.10 For Blocks 9 and 12 (Phase Two of the Proposed Development) the height of buildings will range from five to 10 storeys. The tallest part of each block will be located at the outer northern corners. The buildings then step down to the South in order to improve sunlight on the podium garden. The massing steps down further towards the central weave park.

5.11 Figures 5.2 illustrates the proposed building heights within Block 9 and 12 of the Proposed Development.

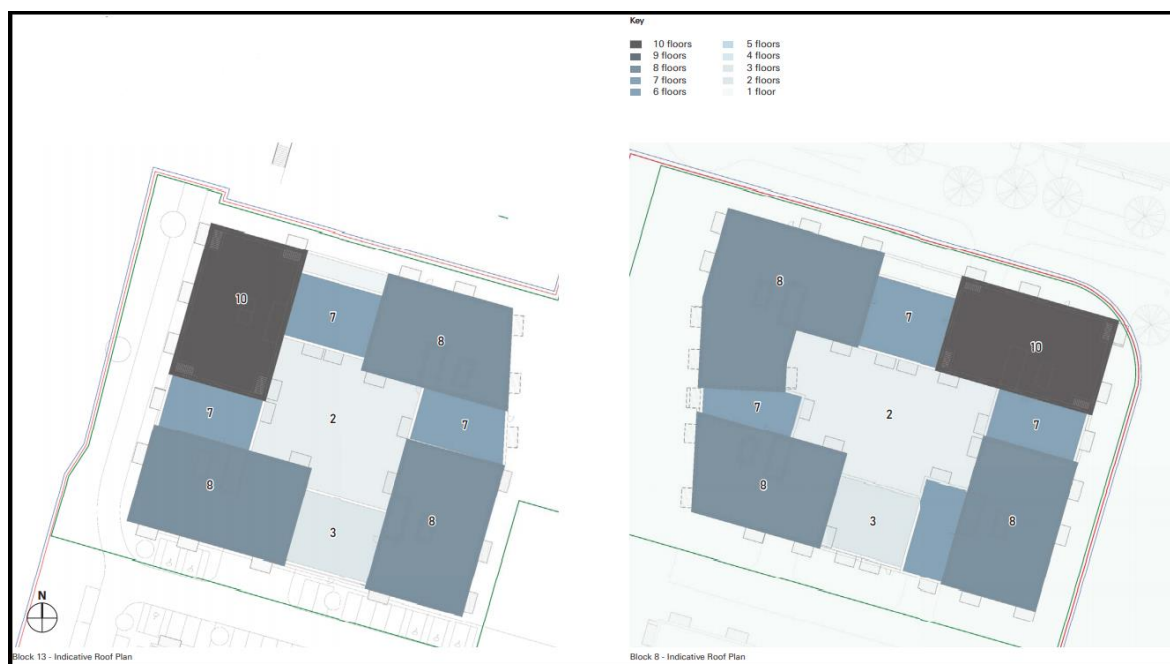
Figure 5.2: Building Heights within Blocks 9 and 12 (Phase Two)



5.12 For Blocks 8 and 13 (Phase Three of the Proposed Development) the height of buildings are currently indicative but will vary to a maximum of 10 storeys. The tallest part of each block will be located at the outer corners and will form the wayfinding gateways into the Site.

5.13 Figures 5.3 illustrates the indicative building heights within Block 8 and 13 (Phase Three) of the Proposed Development for which outline consent is sought.

Figure 5.3: Building Heights within Blocks 8 and 13 (Phase Three)



Density

5.14 The residential element of the Proposed Development will have an overall density of up to 304 dwellings per hectare, based upon a development area of 2.37 ha.

Quantum of Development

5.15 Table 5.1 identifies the quantity of the land proposed for the uses to be provided by the Proposed Development.

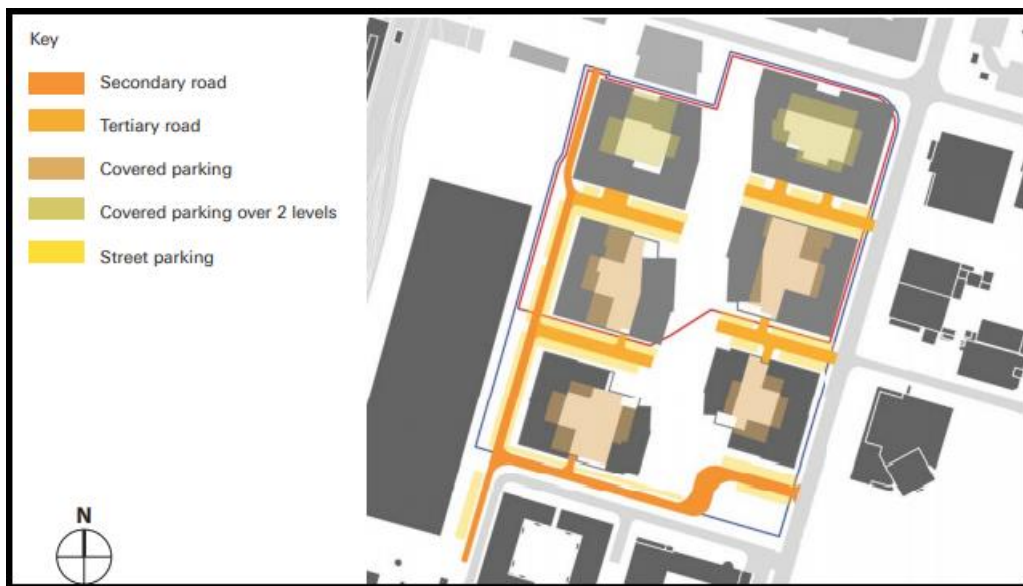
Table 5.1: Land Budget Summary

	Land Budget Summary
Site Area	2.37 hectares
Residential Element	
Density	304 dwellings per hectare
Total no of dwellings Phase Two (Use Class C3)	317
Total no of dwellings Phase Three (Use Class C3)	404
Open Space	
Central Weave	3745 m ²
Podium Level Communal Gardens	2894m ²
Roof Terrace Communal Gardens	2501m ²

Access and Parking

5.16 Access to the Site for road vehicles will be via access points off Broadwater Road as illustrated in Figure 5.4.

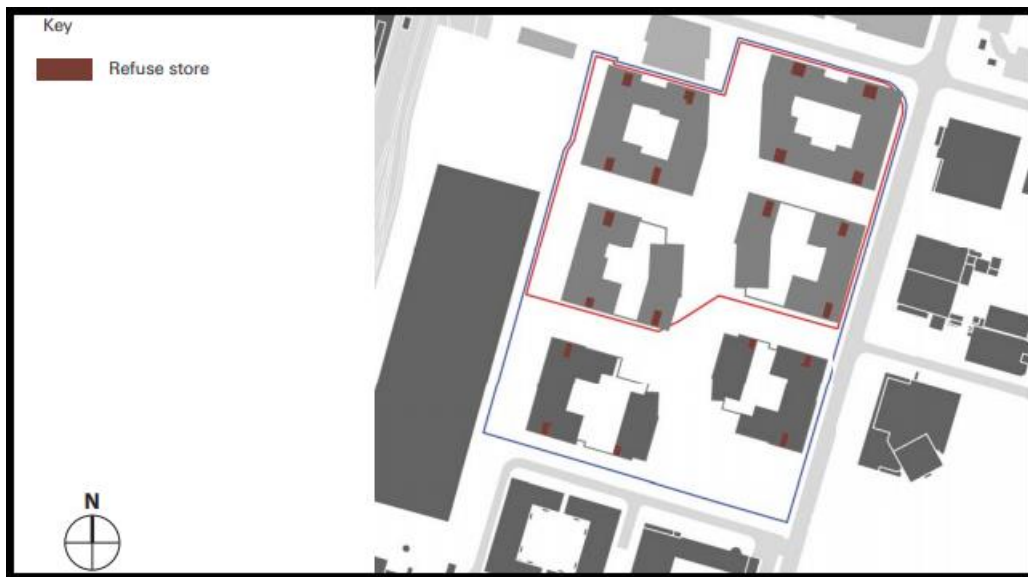
Figure 5.4: Vehicular Access



5.17 Car movements have been limited to the periphery of the Site to ensure that as much as possible of the areas used by pedestrians are free from car traffic.

5.18 It is also proposed that refuse and recycling lorry movements are limited to the periphery of the Site, with no requirement for vehicles to track across defined public accessible spaces. The location of proposed refuse stores have been indicated on the Figure 5.5 below.

Figure 5.5: Location of Refuse Stores



5.19 Car parking will be largely located within undercroft areas but will be supplemented by on-street car parking spaces. Blocks 9 and 12 will have a single level of undercroft parking. Blocks 8 and 13 (for which outlined consent is sought) will have two levels, this is indicative at this time.

5.20 The scheme provides a network of streets and publicly accessible spaces designed to allow easy access. Landscaping of publicly accessible spaces has been designed to provide inclusive access throughout. Pedestrian crossing points along new roads and streets will either provide level access or dropped kerbs.

5.21 Safe and secure private cycle storage will be provided within each residential block as illustrated in Figure 5.6 below. Residents' cycle stores will generally be located adjacent to entrance lobbies and, as much as possible, with direct access to the peripheral road network and to secure car parking.

Figure 5.6: Location of Cycle Stores



Sustainable Urban Drainage System

5.22 A Sustainable Urban Drainage System (SUDS) has been prepared for the Proposed Development which has been designed to accommodate a 1 in 100 year rainfall event including a 40% allowance for climate change.

6 DEVELOPMENT PROGRAMME AND CONSTRUCTION

INTRODUCTION

6.1 This chapter describes the anticipated programme of development works and the key activities that would be undertaken on the Site during the construction phase of the project. It identifies, in general terms, the potential effects associated with construction activities and outlines proposals for their mitigation. Detailed consideration of construction-related environmental effects upon the various technical topics assessed, together with their associated mitigation measures, are provided in each of the technical assessment chapters of this ES.

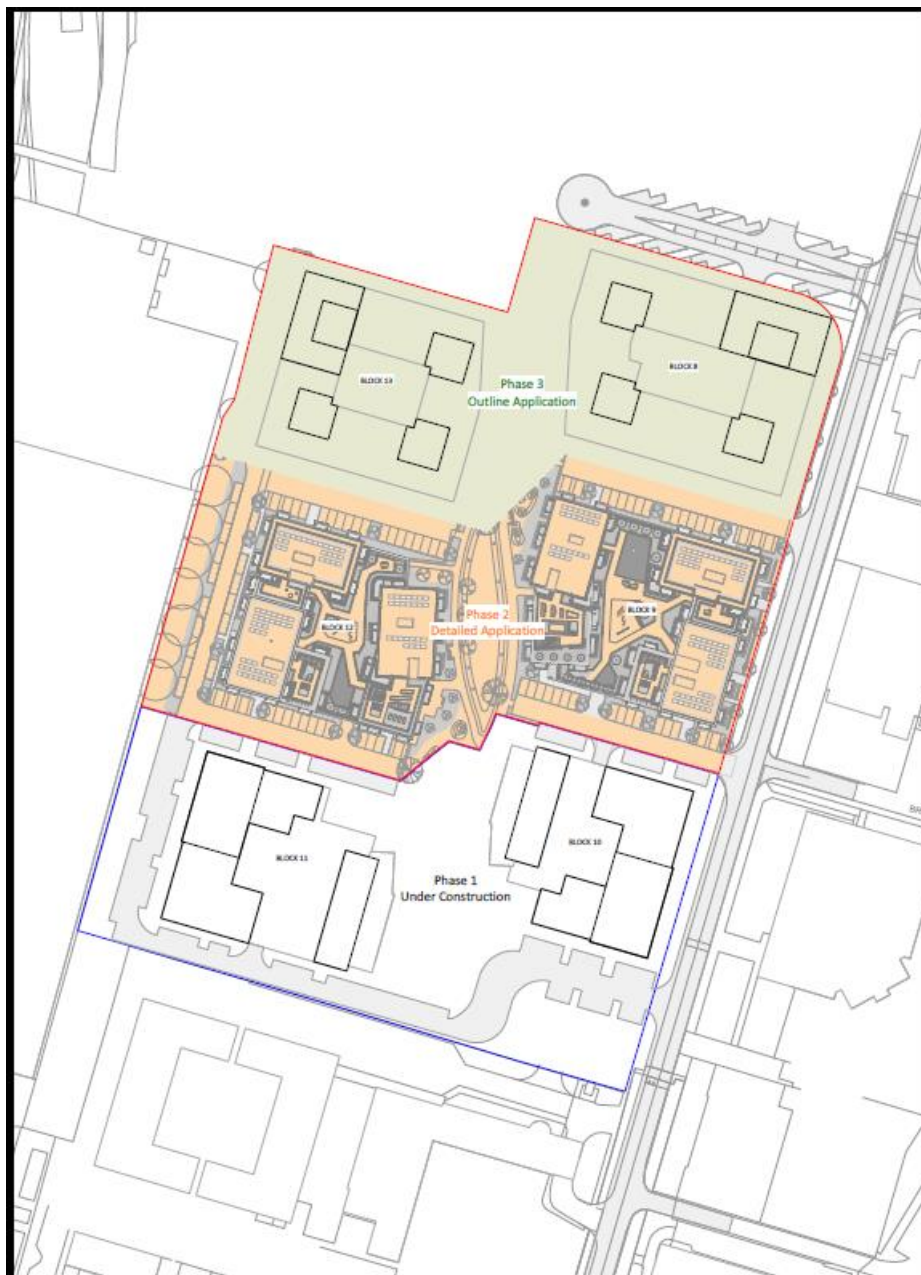
6.2 It is proposed that a Construction Environmental Management Plan (CEMP) would be prepared and implemented for each construction phase of the Proposed Development. This would be discussed and agreed with WHBC prior to the commencement of works at the Site. An outline of the content of the CEMP is provided in this chapter.

6.3 Planning for construction is necessarily broad at this stage and may be subject to modification. For example, specific construction activities could vary in frequency depending upon the particular stage of works. Consequently, where uncertainty exists, the assessment has assumed a 'worst-case' situation. It is considered, however, that sufficient information is available at this stage to enable the likely significant environmental effects relating to the construction works to be identified and their significance assessed.

PROGRAMME OF WORKS

6.4 The construction period is anticipated to be approximately seven years to complete the Proposed Development in its entirety. The development of the South Side Site has been divided into three phases as illustrated in Figure 6.1 below. The Proposed Development comprises Phases Two and Three. Phase One is currently under construction.

Figure 6.1 – Development construction phases (including partially constructed Phase One of the South Side site)



DESCRIPTION OF THE WORKS

6.5 The proposed construction works can be divided into the following main stages:

- Enabling works;
- Site preparation;

- Construction of the development; and
- Removal of remaining construction elements.

Enabling Works

6.6 Enabling works will be undertaken prior to the start of the main construction works. The extent of these works would include:

- Establishment of site project offices and construction compound including car designated parking areas for contractors;
- Isolation or diversion of utility services impinging upon excavation areas;
- Provision of temporary electrical supplies and other required services for the duration of the construction works; and
- Erection of site hoardings including provision of a site security system.

Site Preparation

6.7 All existing non-critical infrastructure will be removed. The enabling works would entail the decommissioning and removal of any associated structures and communication infrastructure in all areas within the Site boundary. The works will include the use of heavy plant, with the potential for on-site material selection, dependant on site establishment and space to facilitate necessary plant. All works will be strictly managed to ensure that vehicle movement and dust are controlled and kept to a minimum. Further details on the management of dust are included in Chapter 8: Air Quality.

6.8 Site preparation works will also involve the breaking out of any hardstanding material, crushing and screening to produce stock piles of aggregate hardcore materials for use within the sub-base and foundation structures of the new buildings and roadways.

6.9 All live utilities and any live drainage would be capped off or diverted before any excavation works commence. A method statement will be produced outlining the process for identifying and disconnecting existing services at the Site.

6.10 Once the temporary works are in place, any groundworks or earthmoving would proceed. All material will be re-used on site where possible, or otherwise transported off-site where reuse is not possible.

Construction of the Proposed Development

6.11 This phase will include the construction of the access roads within the Proposed Development.

6.12 The Site would require new mains water, gas, electricity and IT/telephone connections. Statutory services will be brought into the Site as and when the programme dictates, although the trenching works will be carried out alongside the substructure work.

6.13 The operation of construction vehicles and general construction activities may give rise to the potential for surface runoff to become contaminated with hydrocarbons, silt or other construction materials. This may in turn lead to a contamination event should site drainage be allowed to enter watercourses. Excavations may require dewatering (of accumulated rainfall or runoff) during construction. In such circumstances, it will be important to ensure that the quality of this water is sufficiently high to allow discharge to an appropriate point. Further details on drainage are provided in Chapter 13: Water Quality, Hydrology and Flood Risk.

Removal of Remaining Construction Elements

6.14 This last phase will be undertaken at the end of the main construction works or where the construction has progressed to a stage where it can be undertaken at an earlier time. The extent of these works would include:

- Removal of site project offices and construction compound;
- Decommissioning of temporary electrical supplies and other required services utilised for the construction works; and
- Removal of site hoardings and site security system.

HOURS OF WORK

6.15 It is proposed that hours of work during the construction phase would be as follows:

- 0700-1900hrs on weekdays;
- 0700-1300hrs on Saturdays; and
- No working on Sundays or bank holidays.

6.16 These proposed hours would be agreed with the Local Authority Planning department prior to commencement of the works. Special working outside these hours, such as heavy plant activities and crane and equipment assembly, would be kept to a minimum and would be subject to prior agreement with reasonable notice by the Local Authority's Environmental Health Officer (EHO).

6.17 It is anticipated that none of the works outlined above will be carried out on Sundays or Bank Holidays without special prior agreement with WHBC and other relevant parties.

PLANT AND EQUIPMENT

6.18 The following plant and equipment is anticipated to be used during the construction works.

Table 6.1: Indicative Plant used during Construction

Plant and Equipment	Enabling works and Site Preparation	Construction	Services installation	Fit out	Landscaping
Concrete silo and ready-mix lorries		X	X		X
Concrete cutter, saws and splitters	X	X	X		X
Cranes and hoists	X	X			
Cutters, drills and small tools		X	X	X	
Excavators and breakers	X	X	X		X
Floodlights	X	X		X	



Plant and Equipment	Enabling works and Site Preparation	Construction	Services installation	Fit out	Landscaping
Fork lifts trucks		X	X	X	
Hydraulic benders and cutters		X	X	X	
Road Brush Vehicles		X	X	X	
Lorries/vans	X	X	X	X	X
Tarmac laying equipment		X			X
Scaffolding and access platforms		X		X	X
Temporary supports		X		X	
Tipper lorries		X			X
Wheel washers	X	X	X		X
Skips & Skip trucks	X	X		X	X

ENVIRONMENTAL MANAGEMENT AND MITIGATION

Environmental Management Plan

6.19 A principal construction contractor will be responsible for all aspects of construction operations. In line with best practice, the construction contractor will subscribe to the CCS (Considerate Contractors Scheme).

6.20 A CEMP would be prepared by the Principal Contractor which would include details of all relevant environmental management controls necessary for environmental protection during the construction works. This would follow best practice guidelines and would be agreed with the Local Authority Environmental Health Department.

6.21 The CEMP would include:

- Restrictions and targets for specific work activities in order to minimise environmental effects, including disruption and disturbance to local residents (if relevant), workers and the general public;
- Details of the means by which appropriate environmental monitoring, record keeping and reporting would be managed to ensure the above targets are being met;
- Procedure(s) to deal with necessary 'abnormal' works that may result in deviation from the agreed procedures and targets; and
- Provision for a programme of regular environmental audits and reviews at key stages in the construction programme.

6.22 The CEMP would place stringent contractual and procedural performance obligations upon trade contractors. These would be maintained and reinforced by commitments detailed below and, where relevant, within Chapters 7-16 inclusive. Such obligations would be enforced through subsequent detailed agreements with and consents provided by the Local Authority. A clear management structure and description of the responsibilities and authority of a specific Project Environmental Manager (PEM) would be included.

6.23 The PEM would have primary responsibility for liaising with the Planning Authority and other statutory agencies on environmental matters. It is anticipated that regular meetings would take place to review progress and to agree necessary options. Notwithstanding this, it is recognised that positive action and reaction by site operatives at the time of any environmental incident or breach of targets are essential components for effective environmental management.

6.24 The CEMP would address requirements in relation to environmental controls and would allow for, and include, the following:

- The appointment of an experienced PEM responsible for the preparation and implementation of the CEMP;
- Details of the phasing of the works, including information on construction works that may be carried out by trade contractors;
- Procedures for construction activities, highlighting any operations likely to result in adverse environmental effects, with an indication of the mitigation measures to be employed;
- Wheel washing and highway cleaning procedures;
- Reference to and provision of a framework for compliance with all legislation that would be relevant;

- Emergency procedures that would be implemented on the Site;
- Prohibited or restricted operations;
- Control limits of target criteria for environmental issues, where practicable;
- Requirements for monitoring and record-keeping;
- Mechanisms for third parties to register complaints and the procedures for responding to complaints;
- Provisions for reporting, public liaison and prior notification, especially where dispensations would be required;
- Details of construction operations, highlighting the operations most likely to result in disturbance and/or working outside core working hours, together with an indication of the expected duration of each activity;
- Possible departures from target criteria and details of how any adverse effects would be minimised or potential complaints addressed;
- Details of proposed routes for HGVs travelling to and from the Site;
- Provisions for auditing by the PEM, WHBC and other regulatory authorities, where appropriate;
- Details of plant to be used;
- Details of all construction works involving interference with a public highway, including temporary carriageway/footpath closures, realignments and diversions; and
- Housekeeping procedures and environmental management controls.

Contract Conditions

6.25 Individual trade contracts would incorporate appropriate requirements in respect of environmental control, based largely on the standards of 'good working practice' outlined in the EMP in addition to statutory requirements. Contractors would therefore be required to demonstrate how they would achieve the provisions of the EMP, how targets would be met and how potential adverse environmental effects would be minimised.

Management of Construction Works

6.26 The PEM would deal with queries from the public and other complaints and enquiries. This nominated individual would be named at the Site entrance, with a contact number and would be identified to the Local Authority and community groups, prior to the start of the Site activities and whenever a change of responsibility occurs.



6.27 Any complaints would be logged and reported to the relevant individual within the Local Authority (and vice versa) as soon as practicable.

6.28 The CEMP would specify the roles and responsibilities of the PEM and the appropriate Officers within Local Authority in respect of any breaches or complaints from the public. The required actions would be different in each specific case, depending on the operation, equipment or location.

Emergencies and Accidents

6.29 The building contractor would be required to maintain high safety standards on-site and to be fully compliant with current health and safety legislation.

6.30 An Emergency Incident Plan would be put in place to deal with potential spillages and/or pollution incidents. Any pollution incidents would be reported immediately to the regulatory bodies.

Materials Storage and Handling

6.31 Environmental issues would be considered in the procurement of raw materials and manufactured building components and all such materials would be appropriately stored on the Site to minimise damage by vehicles, vandals, weather or theft. Deliveries of hazardous materials would be supervised and a just-in-time deliveries system would be implemented to minimise storage times and reduce the risk of spillage on-site. Tanks and drums of liquid chemicals and fuels would be stored in bunded compounds. Packaging materials would be returned, where possible.

6.32 Contractors and their sub-contractors would be expected to maintain a tidy site and, where practical, to operate a 'just-in-time' policy for the delivery and supply of materials for the works.

6.33 Where possible, pre-fabricated elements would be lifted directly into position from delivery vehicles. This would assist in reducing on-site storage and labour requirements and construction noise levels to surrounding sensitive receptors.

6.34 Mobile cranes would be used for general unloading and hoisting during the structural and envelope works. Passenger/goods materials hoists, fork lift trucks and other electric or hydraulically operated plant may be used to distribute and transport materials around the Site.

Waste Management and Minimisation

6.35 Waste would be generated during all stages of the construction works. Although specific materials cannot be identified at this stage of the design, potential sources of waste within the construction process are anticipated to comprise:

- Excavated material;
- Packaging – including plastics, wooden pallets, expanded foams;
- Waste materials generated from inaccurate ordering, poor usage, badly stored materials, poor handling, spillage; and
- Dirty water, for example from Site runoff containing silt.

6.36 It is the intention of the project to use all excavated material, wherever possible within the Proposed Development.

6.37 A Site Waste Management Plan (SWMP) would be developed and implemented detailing how waste created during the construction phase would be managed. This would be prepared by the Contractor in accordance with the Site Waste Management Plan Regulations 2008 and non-statutory guidance on preparation of SWMPs. All relevant Contractors would be required to investigate opportunities to minimise waste arisings at source and, where such waste generation is unavoidable, to maximise the recycling and reuse potential of construction materials. Recycling of materials would take place off-site, where noise and dust are less likely to result in effects to the occupants of surrounding properties. Appropriate waste management and recycling centres close to the Site would be identified prior to the construction works and contracts would be established with registered waste carriers and authorised waste disposers for construction waste.

6.38 All waste would be stored on the Site in accordance with the relevant legislation, in particular the Waste (England and Wales) Regulations 2011 (Ref 6.1) and no burning of construction waste would be undertaken at the Site.

6.39 The destination of all waste or other materials removed during construction would be notified to the relevant authority by the Contractor/Construction Manager for approval. Loads



would only be deposited at authorised waste treatment and disposal sites. Deposition of waste would be in accordance with the requirements of the EA, Environmental Protection Act 1990 (EPA), the Controlled Waste Regulations 1992 as amended, the Hazardous Waste Regulations 2005 (Ref 6.2), the List of Wastes (England) Regulations 2005 (Ref 6.3) and the Waste (England and Wales) Regulations 2011.

Traffic and Access Management

6.40 An assessment of the potential effects of the Proposed Development on traffic and the local transportation network is presented in Chapter 7: Transport and Access.

6.41 Specific detail relating to the management of construction traffic will be presented within a dedicated construction transportation plan, which will be submitted for approval by the Local Authority post planning.

6.42 All construction traffic entering and leaving the Site would be closely controlled. Deliveries would be phased and controlled on a 'just-in-time' basis, wherever possible. This would minimise travel time and traffic congestion around the Site.

6.43 The majority of all deliveries would be made by standard HGVs, with no special access / delivery requirements.

6.44 It is anticipated that in the peak period of construction of the wider site, approximately 310 daily traffic movements would occur to and from the Site (arising from 155 vehicles of which less than 25 are classed as HGVs). Construction traffic will access the Site from Broadwater Road.

6.45 The Traffic Management Plan would detail the management of the above measures as well as the management of car parking on the Site and the Site labour force travel to the Site. No parking on public roads would be allowed and the Contractor/Construction Manager would be responsible for enforcing this requirement. Provision would be made within the Site for essential on-site parking. Any local traffic management measures for Site access would be agreed with the relevant authorities.

Air Quality and Dust



6.46 Site-specific best practice measures would be implemented by contractors to minimise the disturbance to local residents and other potentially sensitive receptors. These measures would include:

- Damping down surfaces during dry weather;
- Providing appropriate hoarding and/or fencing to reduce dust dispersion and restrict public access;
- Sheeting buildings, chutes, skips and vehicles removing wastes with the potential for dust generation;
- Appropriate handling and storage of materials, especially stockpiled materials;
- Restricting drop heights onto lorries and other equipment;
- Fitting all equipment with dust control measures such as water sprays wherever possible;
- Using a wheel wash, limiting speeds on the Site to 5 mph, avoidance of unnecessary idling of engines and routing of Site vehicles as far from sensitive properties as possible;
- Using gas powered generators rather than diesel, if possible (these are also quieter) and ensuring that all plant and vehicles are well maintained so that exhaust emissions do not breach statutory emission limits;
- Switching off all plant when not in use;
- No fires would be allowed on the Site; and
- Ensuring that a road sweeper is available to clean mud and other debris from hardstanding, roads and footpaths.

6.47 Full assessments of the potential effects of the construction works on air quality are presented in Chapter 8: Air Quality.

Hazardous Materials and Contaminated Land

6.48 Prior to construction, the Contractor would be required to prepare a Method Statement and Risk Assessment demonstrating how the safety of construction workers and the public would be addressed in terms of potentially harmful substances. Protective measures would include:

- Provision of adequate facilities and procedures for personal washing and changing;
- Provision and use of personal protective equipment (PPE);
- Implementation of dust suppression methods; and
- Implementation measures to avoid surface water ponding and the collection and disposal of the Site runoff.

6.49 Such measures should be carried out in accordance with the Protection of Workers and the General Public during the Development of Contaminated Land document and CIRIA Report 132: A Guide for Safe Working on Contaminated Sites (Ref 6.4).

6.50 Other practical methods of limiting risks from hazardous materials and contaminated land would include:

- The storage of all potentially hazardous materials on hard surfaced areas, with bunding to the satisfaction of the Environment Agency;
- The storage of ground tank oil in accordance with the Control of Pollution (Oil Storage) (England) Regulations, 2001 (Ref 6.5); and
- The treatment of any excess dewatering effluent prior to discharging to the foul sewerage system and only on the achievement of an approved discharge consent from Southern Water.

Site Drainage and Effects on Water Resources

6.51 The assessment of the potential effects of the Development proposals on water resources is presented in Chapter 13: Water Quality, Hydrology and Flood Risk. In summary, a precautionary approach would be adopted to appropriately manage construction-derived surface water run-off. As such, particular care would be taken to prevent any release or mobilisation of pollutants, which could pose a potential risk to receptors such as surface water and groundwater.

6.52 Best practice pollution prevention measures would be put in place to isolate environmentally damaging substances and prevent their release. These measures would be agreed in consultation with the Environment Agency and Thames Water and would include:

- Secure, careful siting and bunding of fuel storage facilities and any areas used for the storage of potentially hazardous materials;

- Use of drip trays when filling smaller containers from tanks or drums to avoid drips and spills;
- Works involving concrete would be carefully controlled and ready-mix concrete wagons would be washed out in a safe designated area;
- The avoidance of stockpiling materials wherever possible to prevent spills and, where undertaken, sheeting and covering these stockpiles and haulage vehicles loads;
- Management of the Site drainage to prevent sediment laden contaminated runoff entering the wider environment;
- Surface drainage would pass through settlement and oil interceptor facilities where required;
- Provision for the treatment and safe disposal of wastewaters, including water from dewatering pumping operations should these be undertaken;
- Appropriate management and transportation of the Site waste including the establishment of dedicated waste storage areas designed to prevent pollution, regular inspections and the implementation of waste minimisation and management plans as described above; and
- Ensuring that any water which may have come into contact with contaminated material would be disposed of in accordance with the Water Resources Act (1991) and other legislation, to the satisfaction of the Environment Agency.

6.53 Furthermore, any piling systems would be designed to minimise the risk of potential pathways for contamination to reach groundwater resources.

6.54 An Emergency Plan would be implemented, forming part of the CEMP, outlining procedures to follow in the instance of any accidents involving spillages. This would involve the provision of on-site equipment for containing spillages, such as emergency booms and chemicals to soak up spillages. Should an incident occur, the Environment Agency would be contacted immediately.

Protection of Ecological Resources

6.55 An assessment of the potential effects of the Development on ecological resources is presented in Chapter 12: Ecology and Nature Conservation.

6.56 Chapter 12 details the measures that will be taken to mitigate effects from the Proposed Development can be broadly summarised as follows:

- Screening during construction;
- No trenches or excavations to be left open, though if unavoidable, exit ramps will be put in place;
- Adherence to the EA's Pollution Prevention Guidance Notes;
- Careful timing of works; and
- Ecologically-informed lighting strategy for operational phase.

CUMULATIVE EFFECTS

6.57 Any cumulative effects during the construction phase are identified within Chapters 7-18 where relevant.

SUMMARY AND CONCLUSIONS

6.58 The construction effects of the Proposed Development would be managed through the development of a project and site-specific CEMP. The CEMP would be agreed with the Local Authority and other relevant bodies prior to the commencement of works which, as a minimum, would comply with the mitigation measures set out in this ES. The CEMP would outline methods for contractor and general public liaison, hours of work, methods to deal with complaints and outline management practices to control dust, traffic and access, waste, water pollution, ecological and archaeological effects, ensuring a high level of control throughout the construction works.

6.59 The procedures within the CEMP would ensure the delivery of a high level of environmental control throughout the construction phase, thereby minimising the potential for adverse effects. Further detail regarding specific mitigation during construction works for the Proposed Development is presented within Chapters 7 to 18 of this ES.

REFERENCES

Ref 6.1: HMSO (2011) The Waste (England and Wales) Regulations 2011

Ref 6.2: Office of the Deputy Prime Minister (2005) The Hazardous Waste (England and Wales) Regulations, SI 2005 No.894. HMSO, Norwich.

Ref 6.3: HMSO (2005) The List of Wastes (England) Regulations 2005

Ref 6.4: CIRIA (2002) CIRIA Report 132 Good Practice Guidance For The Management of Contaminated Land. Safe Working Practices on Contaminated Sites.

Ref 6.5: HMSO (2001) Control of Pollution (Oil Storage) (England) Regulations.

7 TRANSPORT AND ACCESS

Introduction

7.1 This chapter documents the assessment of the likely significant effects of the Proposed Development with respect to transport.

Predicted Impacts

7.2 The scope of the assessment is based on that carried out in support of the consented scheme and has been agreed with Highway Authority officers and includes an assessment of both construction and operational phases.

Effect during construction phase: short to medium term

7.3 It is anticipated that the number of vehicular movements to and from the Site as a result of each phase of the construction will not be more than the number of trips generated by the completed development.

7.4 The South Side will be constructed in three phases. Phase One is currently under construction; the current application is for a revised proposal for Phases Two and Three.

7.5 Each construction phase will have its own Demolition and Construction Management Plan, including control of access from the highway. Phase One is under construction and takes access from Broadwater Road via temporary construction accesses generally in the location of accesses 5 and 6 as well as existing dropped kerbs. Phase Two will utilise these construction accesses. Phase Three is intended to use junction 4 for construction purposes. Once construction is complete, these accesses will form vehicular access for the operational phase.

7.6 The HGV trips will be spread throughout the day, as they will be made up of materials deliveries, off-site disposal and other trips related to the management of the construction process.

7.7 The daily traffic flow associated with the site construction traffic is considered to be relatively low and the change in magnitude for severance is considered to be negligible adverse for all links assessed. In general, the construction vehicles would use existing or newly constructed vehicle accesses from Broadwater Road. This is a main arterial route with standard



footways available either on one or both sides of the carriageway. On this basis, the change in magnitude for fear and intimidation is considered to be negligible adverse for all links assessed.

7.8 The development will be supported by a Construction Logistics Plan (CLP) which will include a route management strategy as well as dictate any limitations on construction vehicle delivery hours. It is anticipated that there would be minimal flows associated with construction during the peak hours and the change in magnitude of the site access junctions for driver delay, pedestrian delay and pedestrian amenity are considered to have a magnitude of negligible adverse.

7.9 The daily traffic flow associated with the construction traffic is likely to be minimal when compared to the operational phase and as with all major construction sites it is anticipated that in addition to the CLP, a CEMP will be secured through a suitable planning condition. It is considered that the change in magnitude for accidents and safety is negligible adverse for all links assessed.

7.10 The wider development will deliver significant highway improvement works to Bridge Road and Broadwater Road as well as off-site highway improvements to increase operational capacity at a number of roundabouts remote from the Site. All highway works will be delivered by means of a Section 278 Agreement with the local highway authority. The S278 technical approval will include a requirement for a traffic management plan to ensure safe working practices within the highway as well as minimal disruption to pedestrian and cycle movements. On this basis, appropriate management is considered to result in a negligible adverse change in magnitude for fear and intimidation for all links assessed. During the construction of the highway improvement works the effect on driver delay is considered to be minor adverse but pedestrian/cyclist delay and pedestrian/cyclist amenity are considered to have a magnitude of negligible adverse.

Effect during operational phase: long term

7.11 The significance of the change in traffic magnitude on severance would be moderate adverse on the Broadwater Road and Bridge Road corridors.

7.12 There is no change in fear and intimidation between the baseline and with development scenarios (excluding Broadwater Road and Bridgewater Road improvement works) on the links considered.

7.13 Additional traffic is likely to lead to further delay on the local highway network. In the absence of mitigation measures, the effect on driver delay on the junctions considered would be major / moderate adverse.

7.14 The effect on pedestrian delay is considered as minor / negligible adverse on the Bridge Road and Broadwater Road corridors. The effect on pedestrian delay at the Bridge Road/Broadwater Road junction would be moderate adverse.

7.15 The increase in pedestrian and cycle trips on Bridge Road, Broadwater Road and the footbridge over the railway would result in moderate adverse pedestrian/cyclists delay on the links and junctions considered.

Mitigation

7.16 During the construction phase, details of the routing strategy, hours of operation, along with logistics and mitigation measures would be included in the CLP and CEMP which should be secured through a suitable planning condition. As a result, the likelihood is that construction vehicle movements will predominantly occur outside of peak hours such that operatives can avoid busy periods on the external network, and avoid late nights/early hours to reduce the disturbance of nearby residents.

7.17 The traffic management plan secured as part of the S278 technical approval process will ensure safe working practices within the public highway during the construction of the off-site highway improvement works. This will minimise disruption to pedestrian and cycle movement.

7.18 The Proposed Development will enhance the existing permeability of the local walking and cycling network through implementation of a number of measures including provision of walking and cycling facilities through the Site. The wider development will deliver the refurbishment of the rail footbridge and the re-modelling of Bridge Road and Broadwater Road to reduce vehicle speeds and enhance pedestrian and cycle routes and crossings.

7.19 The development will be supported by a Framework Travel Plan to promote the use of sustainable modes of travel and reduce the reliance on the private car.

7.20 As a result of the enhancements, it is anticipated that residents, employees and visitors will consider modes other than the private car.



Summary of Effects

7.21 The residual impact of the Proposed Development is considered to be minor / negligible adverse during both the construction and operational phases. The residual impact of the off-site highway improvement works is considered to be minor adverse during the construction phase and **minor / negligible positive** during the operational phase.

8 AIR QUALITY

Introduction

8.1 This chapter reports on the effects of the Proposed Development on air quality.

Predicted Impacts

8.2 The scope of the assessment has been agreed with the Local Authority and includes an assessment of both construction and operational phases.

Effect during construction phase: short to medium term

8.3 An assessment of the potential impacts during the construction phase has been carried out. This has shown that during this phase of the Proposed Development releases of dust and PM₁₀ are likely to occur during site activities. Through good site practice and the implementation of suitable mitigation measures, the impact of dust and PM₁₀ releases may be effectively mitigated and the resultant impacts are considered to be negligible.

Effect during operational phase: long term

8.4 Detailed modelling has been undertaken to determine the impacts of the Proposed Development on the air quality in the vicinity of the Site and assess the suitability of the Site for residential use.

8.5 The assessment found that concentrations of pollutants would be below the relevant objective levels across the Site and within the local area. Emissions from traffic generated by the Proposed Development are predicted to result in a negligible impact on local air quality in the surrounding area. The assessment has also demonstrated that impacts from nearby industrial uses would not adversely impact on the Proposed Development.

Mitigation

8.6 A high risk of dust soiling impacts is predicted at adjacent receptors during construction of the Proposed Development. Appropriate mitigation measures for the Site have therefore been identified following the IAQM guidance. It is recommended that the measures identified are



incorporated into a Dust Management Plan (DMP) and approved by the Local Authority prior to commencement of any work on Site.

8.7 During the operational phase, the impact is predicted to be negligible, therefore no mitigation measures are considered necessary.

Summary of Effects

8.8 Following the implementation of the recommended mitigation measures, the residual impact of the Proposed Development on local air quality is considered to be negligible during the construction and operational phase.

9 WIND MICROCLIMATE

Introduction

9.1 This chapter reports on the likely effects of the Proposed Development on the wind microclimate in and around the Site.

Predicted Impacts

9.2 The assessment is based on an experience-based desk study. It considers the Proposed Development massing and exposure in conjunction with long-term wind climate statistics applicable to the Site and provides an expert review of the likely suitability of wind conditions for proposed activities, based on the industry standard Lawson criteria for pedestrian comfort and safety.

Effect during construction phase: short to medium term

9.3 The wind environment is largely dictated by the building masses which will vary throughout the construction phase, such that any effects will be short term, though the exposure of surrounding receptors to prevailing winds will not be significantly increased at any stage. Pedestrian activities within the Site will also be different during construction and perception of conditions both within the Site and in the surrounding area is also likely to be affected by expectations of conditions around a building site, with pedestrians more likely to tolerate adverse conditions as they can appreciate it as a temporary situation. Therefore, the assessment of wind environment has been limited to the operational phase of the Proposed Development.

Effect during operational phase: long term

9.4 The Proposed Development comprises buildings of modest height in terms of wind effects, which limits the potential for significant downdraughts. However, the Site is relatively exposed and there is potential for channelling of pedestrian level winds around and between the buildings. In response to this, the Proposed Development includes proposals for substantial soft-landscaping which is expected to help alleviate the channelled winds.

9.5 As a result, the Proposed Development is expected to have negligible effect on pedestrian level wind conditions with regards to pedestrian safety, and conditions in and around the Site are expected to rate as safe for all users.



9.6 In terms of pedestrian comfort, with respect to wind force, thoroughfares within and alongside the Site are expected to be generally suitable, and at least tolerable, for pedestrian access to, and passage through or past, the Proposed Development. These effects are considered to range from negligible to minor adverse (at the northwest corners of Blocks 12 and 13 and the southeast corner of Block 9).

9.7 Main entrances to the Proposed Development are expected to enjoy suitable conditions for pedestrian ingress / egress, considered a negligible effect.

9.8 Recreational spaces are expected to have generally suitable, and no worse than tolerable, conditions for planned activities. Effects on amenity spaces are therefore mainly negligible with some localised effects of no worse than minor adverse significance, where suitable conditions for outdoor seating may be limited.

9.9 The Proposed Development is expected to have negligible effect on the pedestrian level wind conditions within the surrounding area and any adverse cumulative effects are expected to be limited to no worse than localised minor adverse, at the space between the North Side's Block 1 and LDS Building.

Mitigation

9.10 Conditions within the Site are expected to be generally suitable, and no worse than tolerable, for planned pedestrian activities and no further mitigation is proposed.

Summary of Effects

9.11 The residual impact of the Proposed Development on wind conditions in and around the Site is expected to be mainly negligible with some potential localised effects of no worse than minor adverse significance.

10 NOISE AND VIBRATION

Introduction

10.1 This chapter has considered the potential impact of noise and vibration generated during the construction phases, whether the Site is suitable for the Proposed Development when taking into account the existing environmental noise conditions and the potential impact of the Proposed Development from changes to road traffic.

Predicted Impacts

10.2 The scope of the assessment includes an consideration of both construction and operational phases.

Effect during construction phase: short to medium term

10.3 The appraisal of noise and vibration levels associated with the construction phases of the Proposed Development shows that there is low likelihood of noise impacts associated with enabling, ground-works and super-structure activities. Any impacts that occur are likely to be minor and of a temporary and intermittent nature.

10.4 There will be no other significant noise or vibration impacts associated with the construction works.

Effect during operational phase: long term

10.5 Calculated noise levels indicate that noise levels at the Proposed Development would be suitable for residential dwellings, provided sufficient ventilation is adopted at the identified properties.

10.6 Based on application of quantitative significance criteria, the Proposed Development would experience effects ranging from Negligible to Moderate, prior to consideration of appropriate mitigation. Following incorporation of suitable glazing and ventilation the magnitude of effect would not exceed any recognised or statutory objectives and would be considered Negligible.

10.7 Specific consideration of mitigation measures is proposed to be required where a required façade reduction of above 24 dB is identified. In order to ensure the protection of future occupants from adverse noise effects.

10.8 Short and long term impacts from the increase in road traffic are calculated to be Negligible at all identified road links.

Mitigation

10.9 Measures to limit noise emissions will be included within a CEMP which will be agreed with the local authority.

10.10 For the operational phase, proportional and adequate acoustic treatments (e.g. mechanical or passive ventilation, acoustic air bricks) will be incorporated into the Proposed Development for all properties identified as experiencing Moderate or Major effects, prior to mitigation, in order to achieve an appropriate acoustic environment.

Summary of Effects

10.11 The impact of noise and vibration during construction of the Proposed Development has been predicted and assessed in accordance with BS 5228. Mitigation measures have been recommended, which when implemented are capable of ensuring that the impact of noise and vibration during the construction of the Proposed Development is adequately controlled and will provide a Minor or Negligible effect.

10.12 An assessment has been carried out in accordance with the adopted criteria to determine the suitability of the Site for residential accommodation. Proposed units will require appropriate glazing and ventilation specification in order to achieve the required internal noise levels and the resultant noise effect will be Negligible at proposed residential properties.

10.13 The impact of development associated traffic has been assessed. It is calculated that increases in road traffic noise would result in Negligible effects due to changes in road traffic in the short and long term.

11 LANDSCAPE AND VISUAL AMENITY

Introduction

11.1 The Site is located on the eastern edge of Welwyn Garden City town centre, separated by the East Coast Mainline railway. The Site is located within the industrial zone of Welwyn Garden City on the central and southern part of the grounds of the former Shredded Wheat factory. The Site is located adjacent to the North Side of the former Shredded Wheat factory site that contains Grade II Listed buildings of the former Shredded Wheat factory, of which the retained 1920's silos and production hall form a visual landmark within the surrounding townscape area and provide a sense of place and forming some of the oldest industrial development within Welwyn Garden City.

11.2 The Site features an existing pedestrian connection running east / west along Hydeway, which connects with Welwyn Garden City town centre via a pedestrian footbridge over the railway. Due to the decline in industry and manufacturing over the last century the Site fell into disrepair and dereliction, affecting the quality of the Site and immediate townscape setting. Most of the former factory buildings have been removed from the Site under the extant consent, temporarily allowing more open views of the retained 1920s parts of the former factory.

11.3 The design of the Proposed Development in its wider context was assessed using 27 different viewpoints, some of which are sequential, which were selected in consultation with WHBC and Historic England during discussions to inform the application for the extant consent and subsequent discussions as part of the Pre App process for this application.

Predicted Impacts

11.4 The main views into the Site are from roads, the railway station and pedestrian routes adjacent to or in very close proximity to the Site. Opportunities for views of the Site from a distance of greater than a few hundred metres are limited, as for the most part the Site is visually screened by layers of existing intervening built form and vegetation. A long distance view, through intervening vegetation towards the tops of the silos within the North Side site, is currently experienced by receptors visiting Hatfield House and Gardens (a Registered Historic Park and Garden and Grade I listed building).

Effect during construction phase: short to medium term

11.5 During demolition and construction, there would inevitably be a visual intrusion to the local townscape and views from locations close to the Site as a result primarily of large construction plant and machinery, including tower cranes, and the presence of partially completed built form of the Development. There would be also temporary disruption to the public access along Hydeway. However, this situation is unavoidable for the redevelopment of the Site and would only be temporary in nature.

11.6 Phase One of the South Side is currently under construction, in accordance with the extant consent, therefore during construction of the Site (South Side – Phases 2 & 3) receptors to the east, south and west would experience glimpsed views of the construction activities within the Site on the skyline in the context of the Phase One South Side site and North Side site construction activity. The Site construction phases would introduce additional visually detracting uncharacteristic features to views, primarily tall onsite machinery including tower cranes, piling rigs and scaffolding however, these activities would be obscured by emerging built form and activities on the Phase One South Side site and similar activities would have taken place on the Site under the extant consent in any case.

11.7 A small proportion of existing trees and vegetation would be removed during construction but this would also be rectified by the significant amount of landscaping to be incorporated into the Proposed Development. Once new planting has established, the landscape proposals would substantially increase the vegetation coverage, diversity and amenity value within the Site.

Effect during operational phase: long term

11.8 The design of the Proposed Development is a culmination of an extensive consultation process with WHBC, Historic England and many other statutory and non-statutory stakeholders as part of an iterative design process. The Proposed Development would regenerate a parcel of former industrial, brownfield, derelict land of low townscape quality.

11.9 The Proposed Development would introduce new high quality built form and would enhance the sense of place. The Proposed Development would introduce a number of community uses including play provision and would deliver new public realm, green open space and highway improvements. These would result in the sensitive integration of the Proposed Development into the wider setting of Welwyn Garden City.

11.10 For pedestrians in the immediate area of the Site, on Broadwater Road, Bridge Road and on the Network Rail footbridge into the Site, the Proposed Development would positively enhance the visual quality, experience and approach creating a welcoming, safe and visually inviting townscape. People using Welwyn Garden City railway station would also experience an improvement to their views towards the Site.

11.11 For a small proportion of residential receptors, in close proximity to the Phase One South Side site and directly adjacent to the North Side site, for the most part these areas of the extant consented development will restrict and screen views to the Proposed Development and any partial to glimpsed views would be seen in the context of the extant consented development through breaks in its built form, in the near distance.

11.12 The Proposed Development would increase the extent of built form to views in the near distance however, there would not be a significant change to these views over and above that of the extant consented proposals on the Site. Similarly, visitors and tourists to Hatfield House, with long distance views towards the Site, would experience long distance partial to glimpsed views of the upper storeys of residential built form within the Proposed Development, which would be largely screened by intervening vegetation. Any partial to glimpsed views towards the Proposed Development would be of the upper storeys, seen in the long distance above and in the context of the extant consented South Side Phase One and North Side development and existing tall built form of Welwyn Garden City town centre.

Mitigation

11.13 Appropriate mitigation measures for the Proposed Development have been identified for both the construction and operational phases. During construction, measures include the retention and protection of trees and other vegetation where possible, control of mobile cranes and lighting, sensitive location of compounds and use of hoarding to control views. For the completed scheme, measures include the sensitive design and layout of the Proposed Development, provision of new planting within and on the Site boundaries, creation of a diverse range of public squares and open space to contribute positively to townscape character and the provision of new ecological habitats and enhancements, together with the ongoing management of the landscaped open spaces during the operational phase. In addition, to increase the quantity of amenity space provided, the Proposed Development provides communal rooftop gardens. These gardens would include extensive soft landscaping to soften the proposed built form, with small trees, large shrubs, hedges, climbing and trailing planting providing a substantial contribution to vertical landscaping.

Summary of Effects

11.14 There would be effects on the townscape character and visual amenity in areas in close proximity to the Site during the construction period, with views of construction activities, cranes, plant and equipment however, these effects would be temporary. The Proposed Development would not result in any significant long term adverse effects upon townscape character or on visual amenity in the area surrounding the Site or into the landscape or townscape beyond.

11.15 The Proposed Development has been designed in consultation with key stakeholders. The scheme delivers a bespoke, sustainable and high quality landscape, designed to characterise the development, provide a long term landscape and ecological resource and contribute to the positive integration of the development into the surrounding context of Welwyn Garden City.

11.16 The effects of the proposals on the townscape and views would be largely similar to those likely to result from the extant consented scheme.

12 ECOLOGY AND NATURE CONSERVATION

Introduction

12.1 This chapter reports on the effects of the Proposed Development on ecology and nature conservation. The chapter is informed by ecology surveys of the Site, including a desk study, an extended Phase 1 Habitat survey and a range of previous assessments.

Predicted Impacts

12.2 The scope of the assessment has been agreed with the Local Authority and includes an assessment of both construction and operational phases.

12.3 No statutory or non-statutory designated sites of nature conservation importance are contained within the Site. All such sites within the surrounding area are removed from the Site and sufficiently separated by existing urban development so as to preclude direct or indirect impacts from the Proposed Development.

12.4 The Site is dominated by bare ground/re-colonising, areas of ephemeral / short perennial and hardstanding with trees located primarily at the western boundary. Scattered scrub and dense continuous scrub habitat is also present within the north-east and eastern areas of the Site. There is an area of retained scattered trees along the western boundary. The Site currently contains limited ecological interest with habitats that are largely of negligible or limited local ecological value.

12.5 Surveys of protected species have found that the Site is of generally limited ecological value. The Site is adjacent to nesting peregrine falcon *Falco peregrinus*. Furthermore a low population of slow-worm *Anguis fragilis* (which has since been translocated to adjacent habitats) were recorded on the adjacent Site. Habitats also offer some potential for nesting birds and other Priority Species including hedgehog. This is particularly relevant to the area of scattered trees and scrub along the western boundary. Within this area six trees were identified as being suitable for roosting bats. All trees considered to have bat potential are proposed to be retained with the proposed development.

Mitigation, Compensation and Enhancement

12.6 Mitigation, compensation and enhancement measures are therefore proposed, including construction safeguards, a bespoke peregrine falcon mitigation (limiting disturbance), new habitat and open space provision and drainage and lighting design. Notably, habitat enhancement measures could provide an overall gain in biodiversity across the Site, including new habitat creation and enhancement and provision of new nesting and shelter opportunities for key species.

12.7 Specific mitigation will be provided for construction and operational works for peregrine falcon *Falco peregrinus* and bat species that may utilise the Site.

12.8 The Proposed Development and mitigation scheme have also been designed to achieve compliance with relevant legislation and planning policy. Measures are proposed to avoid the killing of or injury to protected species such as bats, birds and reptiles (protected under the Wildlife and Countryside Act 1981 and the Conservation of Habitats and Species Regulations 2017 (as amended)). Opportunities for enhancements to biodiversity are also proposed, in accordance with the National Planning Policy Framework (NPPF), the NERC Act 2006 and local policy. Proposed enhancements will also deliver benefits in terms of local green infrastructure, providing networks of green links and corridors through and around the Site.

Summary of Effects

12.9 Following mitigation, compensation and enhancement measures, it is considered that the Proposed Development would result in an overall gain in the existing ecological interest supported by the Site, with particular benefits in respect of habitats, roosting bats, nesting birds, notable mammals and invertebrates. Together, these gains are considered to result in an overall beneficial effect of moderate magnitude, which is likely to be significant at the local level.

13 WATER QUALITY, HYDROLOGY & FLOOD RISK

Introduction

13.1 This chapter presents an assessment of the likely effects of the Proposed Development on water quality, hydrology and flood risk.

Predicted Impacts

13.2 The scope of the assessment includes an assessment of both the construction and operational phases.

13.3 From reviewing the baseline conditions within and surrounding the Site, groundwater, foul drainage demand and mains water supply are considered to be the key receptors in terms of the Proposed Development. For groundwater, this is due to the Site being situated on a Principal Aquifer and within an SPZ Zone 3. For foul drainage and mains water supply, the high sensitivity classification is due to the local drainage infrastructure not having the capacity for the Proposed Development without mitigation and consultation with Thames Water is ongoing in this regard. Surface water is considered to be medium sensitivity as the Site is located within the 'Mimram' catchment which has a 'moderate' ecological status. Flood risk and drainage are considered to be low sensitivity receptors as the Site is located in Flood Zone 1 and is not in a critical drainage area.

13.4 The key effect during the construction phase is the potential for the remobilisation of any existing contamination at the Site. However, with suitable mitigation measures, the residual effect is considered to be Negligible. Water demand and foul demand are considered to be the key potential effects during the operational phase of the Proposed Development. However, with suitable mitigation measures put in place, the residual effects are considered to be minor adverse for water demand and foul demand.

Mitigation

13.5 The construction phase environmental effects will be managed using measures outlined in a Construction Environmental Management Plan (CEMP).

13.6 The Proposed Development will include Sustainable Drainage Systems (SuDS), as detailed within the Flood Risk Assessment and Drainage Strategy report. The system seeks to reduce the rate of surface water runoff in accordance with local policy. This runoff rate would be lower than the current natural rate of surface water runoff during extreme events.

13.7 Further consultation is on-going with Thames Water regarding any off-site infrastructure improvements which may be required in relation to the supply of mains water and foul drainage demand of the Proposed Development.

Summary of Effects

13.8 In conclusion, given the location and nature of the receptors, the overall environmental effect of the Proposed Development in relation to water resources and flood risk following the implementation of mitigation measures is considered to be negligible to minor adverse. All residual effects are negligible with the exception of surface water drainage (minor beneficial) and water/foul demand (minor adverse).

14 SOILS, GEOLOGY AND CONTAMINATED LAND

Introduction

14.1 This chapter reports on the effects of the Proposed Development on the soils and geology, with regards to land contamination.

Predicted Impacts

14.2 An assessment of ground conditions and contamination has been undertaken using the findings of a desk-based study and various intrusive site investigations undertaken at the Site over many years, as a result, site conditions and constraints are well understood.

Effect during construction phase: short to medium term

14.3 An assessment of the potential impacts during the construction phase has been carried out. This has shown that during this phase of the Proposed Development land contamination is unlikely to worsen during site activities. Through good site practice and the implementation of suitable mitigation measures such as Personal Protective Equipment (PPE) and implementing formal techniques as part of the Construction Environmental Management Plan (CEMP), any potential temporary impact may be effectively mitigated, and the resultant impacts are neutral.

Effect during operational phase: long term

14.4 The various phases of site investigation identified significant contamination of the groundwater underlying the part of the Site and localised soil contamination around the former Polycell Factory (now demolished). Remediation measures have been used to address this former source of contamination and groundwater testing has established that levels of contamination have significantly decreased within groundwater as a result. Widespread, or significant contamination has not been identified elsewhere on the Site.

14.5 Due to the geology of the area, a geotechnical site investigation was undertaken to identify dissolution features and hence issues with foundations. Where potential dissolution features are identified, this would be accounted for through the engineering design of foundations and/or construction methods to ensure that potential risks to structures, construction workers and future users of the Site are minimised.

Mitigation

14.6 During the construction phase, good site practice and the implementation of suitable mitigation measures, such as construction workers wearing suitable PPE and implementing techniques as part of the CEMP, will be required. In addition, several measures for good site management have been recommended to minimise exposure of workers and the public to potentially harmful substances during demolition and construction.

14.7 A Foundation Works Risk Assessment should be prepared in consultation with the Environment Agency to establish the appropriate piling methodology to minimise further groundwater contamination.

14.8 The provision of building footprint and hardstanding across most of the Site and the provision of clean topsoil in areas of soft landscaping would result in a very low risk of harm to human health and the wider environment following completion of the Proposed Development.

Summary of Effects

14.9 The residual impact of the Proposed Development on land contamination is negligible/neutral during both the construction and operational phases.

15 CULTURAL HERITAGE

Introduction

15.1 The Heritage Statement assesses the likely effects of the Proposed Development on heritage receptors in support of a hybrid planning application for the land that falls under Phases Two and Three of the Former Shredded Wheat Factory, South Side.

15.2 The heritage receptors identified are: the Welwyn Garden City Conservation Area, located to the west of the Site; the Peartree Conservation Area, south of the Site; the Essendon Historic Core Conservation Area, located 5.4km south-east of the Site; the Grade II listed former Shredded Wheat factory; the Grade II former Roche Products Factory Office Building, to the south of the Site; and the Grade I listed Hatfield House and Grade I Registered Hatfield House Park, approximately 4km to the south of the Site.

Predicted Impacts

15.3 The scope of the assessment includes an assessment of the likely significant effects arising from the proposals during both construction and operational phases of the Proposed Development.

Effect during construction phase: short to medium term

15.4 In the case of heritage assets, the effects due to demolition and construction are temporary and will not result in an effect on their significance or special interest. This is because their significance arises from their intrinsic architectural or artistic and historic value. These works may however be visible within the settings of heritage assets, which could be considered adverse. These effects will be experienced visually and are therefore covered as part of the visual effects during demolition and construction in Chapter 11 'Townscape and Visual Amenity' of the ES, prepared by Bradley Murphy Design. This approach is in line with Historic England's guidance as set out in GPA Note 3: The Setting of Heritage Assets, Second Edition, 2017.

Effect during operational phase: long term, completed development

15.5 With regard to the significance of the former Shredded Wheat Factory and its setting and the effect of the Proposed Development on this setting, the proposed building layout and landscaping ensures that visual links to the former Shredded Wheat Factory are maintained. The Proposed Development would better reveal the significance of the listed building and enhance its immediate setting. There would be a minor further reduction in visibility of the silos

compared to the extant consented scheme in some of the long distance views from Hatfield House and Hatfield House Park. However, this change would not harm the significance of the silos as there is no significant historical architectural link between these heritage assets. The assessments also conclude that the change in the setting of the Grade II listed Roche Factory Building would have no effect on the significance of the heritage asset.

15.6 The effect of the Proposed Development on the setting of the Welwyn Garden City Conservation Area from two important viewpoints (views 7 and 8) has been considered. In both views the Proposed Development would add to the existing development that forms the skyline without causing harm to the setting or significance of the conservation area, since this existing skyline is neither formed of contributing buildings or the visibility of the Proposed Development would be slight as to not be significant. Owing to the distance from the Site to the Peartree Conservation Area, the Proposed Development would have no effect on its setting or its character and appearance. Distant views of the Proposed Development would be glimpsed from the public footpath, to the north-west and outside the Essendon Historic Core Conservation Area. The visibility of the Proposed Development would be limited to the rear gardens of private properties that fall within the conservation area. There would, therefore, be no effect on the conservation area's significance.

15.7 The Proposed Development serves to reduce the distracting effect of the white painted listed silos in views from the southern approach of the Grade I listed Hatfield House leading to an enhancement of the setting. It provides a greater level of visible built form in the view, which is of a subdued nature as a result of the choice of materials. This would lead to a very low level of 'less than substantial harm' to the significance of the Grade I listed Hatfield House. With regard to the effects on the setting of the Grade I registered Hatfield House Park, the assessment concludes that the Proposed Development would be a new form of development that would be predominantly contained within the urban landscape of Welwyn Garden City. There would be no effect on the significance of the registered park.

Mitigation

15.8 The process of design development allows potentially harmful effects on the setting of heritage assets to be reduced as far as possible or eliminated. In proposing a substantial object in the townscape, it is incumbent on the design team to develop a design which will be a delight to see from all directions. This is part of the normal iterative design process and the skill of the designer ensures that mitigation need not be 'added on' later. Hence, for the purpose of the Heritage Statement, the mitigation is considered to be embedded in the design. No additional mitigation is required. The effects on the significance of heritage assets are, therefore, considered after mitigation has been implemented.

Summary of Effects

15.9 The outcome of the assessments in the Heritage Statement indicates that two significant effects in ES terms were recorded. They relate to the enhancement of the setting of the Grade II listed former Shredded Wheat Factory, which would better reveal the significance of the listed building; and to the lowest level of 'less than substantial harm' on the significance of the Grade I listed Hatfield House. The consultancy believes that, in accordance with paragraph 196 of the NPPF, the public benefits proposed with the Proposed Development, including the illustrated high quality of the proposed architecture, sensitively accounting for relevant heritage settings, outweigh the very low level of harm caused.

16 SOCIO-ECONOMICS

Introduction

16.1 This chapter has been prepared to assess the effects of the Proposed Development on Socio-economics.

Predicted Impacts

16.2 The scope of the assessment has been agreed with the Local Authority and includes an assessment of both construction and operational phases.

Effect during construction phase: short to medium term

16.3 245 Full Time Equivalent (FTE) jobs would be generated by the Proposed Development during the seven year construction phase; including jobs directly created by the Proposed Development at the Site and those created along the supply chain through the provision of goods and services to the construction process.

16.4 There is potential for cumulative beneficial effects to occur with regards to the construction supply chain resulting from the combination of the Proposed Development and other nearby proposed developments considered. This effect is unlikely to be significant.

Effect during operational phase: long term

16.5 Delivery of 721 residential dwellings would positively contribute to local housing targets, providing high quality new housing stock designed to generous space standards.

16.6 The Proposed Development will result in additional retail spending as a result of the future residents onsite. It is estimated that the additional retail spending in the local area will be £11.0 million which will stimulate the local economy.

16.7 The Proposed Development is predicted to result in 1,730 new residents, who will need access to local GP surgeries. It was identified that there is a current deficiency in local GP surgeries based on general guide ratio of registered patients to the number of GPs, although it was identified that local dentists and hospitals have the capacity to accommodate for these new residents.



16.8 The Proposed Development is projected to bring new children to the area including 35-111 children aged 0 to 4 years, 11-22 children aged 5 to 10 years and 11-56 children aged 11 to 18 years. These children will result in increased demand for childcare facilities and secondary schools beyond their existing or projected capacity. There are enough spaces at local primary schools to accommodate these new children.

16.9 The Proposed Development will provide new public open space as well as podium level and roof level semi-private open space and play areas for young children. The proposed design has been designed to minimise crime in accordance with Secured By Design principles through good lighting, CCTV and increasing natural surveillance.

16.10 The projected population of 1,730 persons will create additional demand on local libraries and youth centres. Despite this, the proposals will provide a variety of new community facilities.

16.11 Cumulative impacts on local GP surgeries, childcare provision, primary education provision and secondary education provision were assessed. Overall, cumulative impacts associated with other nearby developments were identified that could place increased demand on local GP surgeries, childcare facilities and secondary schools.

Mitigation

16.12 The impact of the construction employment (both direct and indirect) generated by the demolition and construction phase of the Proposed Development is positive and therefore would not require mitigation.

16.13 For the operational phase, mitigation will be provided in the form of childcare contributions, primary and secondary education contributions, healthcare contributions, library contributions and youth contributions. This will ensure that the Proposed Development compensates for the increased demand on primary school places, secondary school places, GP surgeries, libraries and youth services.

Summary of Effects

16.14 The residual Socio-economic impacts of the Proposed Development on future and local residents will be mostly beneficial or negligible. Overall, the Proposed Development will help to meet local housing targets and offer a variety of recreational and open space for future and local residents.

17 CLIMATE CHANGE AND GREENHOUSE GASES

Introduction

17.1 A Climate Change assessment has been undertaken which includes:

- An assessment of the likely significant impacts of climate change on the resilience of the Proposed Development during operation; and
- An assessment of the likely significant impacts of the Proposed Development on the environment with regard to climate change through the direct and indirect release of greenhouse gas emissions during construction and operation.

Predicted Impacts

17.2 The scope of the assessment has been agreed with the Local Authority and includes an assessment of both the construction and operational phases.

Effect during construction phase: short to medium term

17.3 During the construction phase, the assessment has identified that there will be significant GHG emissions associated with material embodied carbon, transport, construction plant activities and waste production during the seven year construction phase. It is estimated that the scale of these emissions during construction is likely to 18,729 tonnes CO_{2e} based on RIBA Benchmarks. This is considered to be a Minor Adverse impact.

Effect during operational phase: long term

17.4 The Climate Change Resilience Assessment used a risk based methodology and UK Climate Change projection data to identify the key risks associated with the Proposed Development due to climate change in the 2030s, 2060s and 2090s.

17.5 During the operational phase, Climate Change Resilience Assessment has identified Minor Adverse impacts due to flooding, water shortages and soft landscaping failures based on climate change projections for the 2060s and 2090s. In addition, overheating of buildings was identified as a Moderate Adverse impact for the 2030s and a Major Adverse impact on the Proposed Development in the 2060s and 2090s. This is due to the fact that climate change is predicted to increase temperatures and extreme weather conditions over the next 60+ years.

17.6 The operational energy emissions are predicted to be Minor Adverse after the connection to a Combined Heat and Power (CHP) system for space and water heating and energy efficient measures including improving the building materials to reduce heat loss.

17.7 The operational transport emissions are predicted to be Minor Adverse due to the volume of trips that will be generated as a result of the Proposed Development and their associated magnitude of emissions.

Mitigation and adaptation

17.8 The Proposed Development design will incorporate appropriate adaptation measures to reduce the climate change risks of flooding through the provision of SuDS measures which will include the use of ponds, permeable pavements and geocellular tanks. Adaptation measures for water shortages will include water efficient sanitaryware and utilising less water intensive utilities. The planting strategy includes a wide variety of species and is designed to be resilient to climate change. A Landscape Management Plan will be conditioned will ensure that a health assessment is carried out every five years to ensure planting remains suitable for dealing with changing climate conditions and replaced / altered where necessary. The Energy Statement has set out measures that will reduce overheating including natural ventilation and low emissivity glazing. Despite these adaptation measures, due to the presence of scientific unknowns within the climate system, residual effects cannot be defined.

17.9 In addition, the Proposed Development will incorporate a variety of measures to reduce greenhouse gas emissions during the construction and operational phases of the Proposed Development including:

- Implementation of a Site Waste Management Plan, Travel Plan and Construction Logistics Plan during construction;
- Selection of sustainable materials during construction based on the BRE Green Guide and consideration of alternative materials with low embodied carbon;
- Minimising operational transport emissions through the Travel Plan, Car Club and provision of secure cycle storage; and
- The implementation of a fabric first approach, passive design measures and energy efficient technologies including CHP.

Summary of Effects

17.10 Following the mitigation embedded into the design, construction and operation of the Proposed Development, the residual GHG impacts are considered to be as follows:

- Negligible to Minor Adverse for construction embodied carbon;
- Minor Adverse for operational transport; and
- Minor Adverse for operational energy.

17.11 Overall, the adaptation and mitigation measures are considered to be appropriate in accordance with best practice, the NPPF and the Welwyn Hatfield Borough Council Local Plan.

18 WASTE MANAGEMENT

Introduction

18.1 This chapter reports on the effects of the Proposed Development on waste management.

Predicted Impacts

18.2 The potential for the generation of waste is an aspect of any activity. In relation to the Proposed Development waste will be generated during the site demolition and clearance phase (which has been completed), during the construction phase and during the operational phase.

Effect during construction phase: short to medium term

18.3 An assessment of the potential impacts during the construction phase has been carried out using available guidance. Through good site practice and the implementation of suitable mitigation measures such as a Construction Environmental Management Plan (CEMP), Resource Management Plan (RMP) and a Site Waste Management Plan (SWMP), any potential temporary impacts may be effectively mitigated, and the resultant impacts are negligible.

Effect during operational phase: long term

18.4 The British Standard BS 5906:2005 (Waste Management in Buildings) has been used to assess the potential waste volumes associated with the proposed site use. Residential tenants will have their waste collected as part of the Local Authority's municipal waste collection services and thus will be obliged to comply with the Local Authority's waste collection requirements.

Mitigation

18.5 During the construction phase the implementation of suitable mitigation measures, such as a formal CEMP, RMP and SWMP, will be required.

18.6 The Principal Contractor currently working on Phase One of the South Side site works to a target of 99% diversion from landfill and at present is delivering over 99.5%. Waste management is a key construction metric that is subject to regular review. Continuous improvement is inherent within their systems.

18.7 As of January 2021, the Principal Contractor for Phase Two and Phase Three has not been appointed. It is anticipated that the Phase Two and Phase Three landfill diversion targets,



recycling/recovery targets, KPIs and management processes will be to an equivalent standard as implemented during Phase One South Side.

Summary of Effects

18.8 The residual impact of the Proposed Development is negligible/neutral during both the construction and operational phases.