

Ham Close Regeneration

Planning Application:
Environmental Statement
Volume 4: Non-Technical
Summary
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NON-TECHNICAL SUMMARY

This document is the fourth volume of the Environmental Statement (ES) which accompanies a detailed planning application for a phased mixed-use scheme known as Ham Close, Richmond, TW10 7NY in the London Borough of Richmond. Greengage Environmental Ltd have prepared this ES on behalf of Hill Residential (the 'applicant'). This is a non-technical summary of the comprehensive main technical assessment and appendices found in Volumes 1, 2 and 3 of the ES.

WHAT WILL ACCOMPANY THE PLANNING APPLICATION?

In addition to the ES and the necessary forms, plans, and drawings, the planning application is also accompanied by a number of technical study reports including, amongst others, the following:

- Daylight/Sunlight Assessment (Internal and Surrounding);
- Wind Microclimate Assessment;
- Transport Assessment;
- Travel Plan;
- Parking Design and Management Plan;
- Tree Survey Report, Arboricultural Impact Assessment and Arboricultural Method Statement;
- Open Space Assessment;
- Playing Fields Assessment;
- Play and Child Occupancy Assessment;
- Energy Statement;
- Sustainability Statement;

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- BREEAM Pre-assessment;
 - Whole Life Carbon Assessment;
 - Circular Economy Statement;
 - Energy Monitoring Statement;
 - Site Waste Management Plan;
 - Flood Risk Assessment;
 - Foul Drainage;
 - Utilities Assessment;
 - Operational Waste Management Strategy;
 - Geotechnical Reports; and
 - Fire Statement / Strategy.

WHAT IS AN EIA?

Environmental Impact Assessment (EIA) is a process to ensure that planning decisions are made with full knowledge of a project's likely significant environmental effects, and that any negative effects are prevented, reduced or offset, while positive effects are enhanced. The ES is one of the outcomes of the EIA process.

The ES comprises a series of studies, surveys and consultations that have informed the design of the proposed development to seek to minimise its environmental impacts and to identify measures to ensure that the proposed development is built and 'operated' in a sustainable way. The ES is set out as four volumes: Volume 1: Main Text and Figures, Volume 2: Technical Appendices; Volume 3: Heritage, Townscape and Visual Impact Assessment and Volume 4: The Non-Technical Summary. The Non-Technical Summary is intended to provide members of the public, and any

other interested parties without specialist technical knowledge, sufficient information to understand the proposals and the principal findings of the EIA, as presented in Volumes 1, 2 and 3 of the ES.

The proposed development does not automatically require an EIA to be undertaken; this is required for much more complicated developments such as chemical works or power stations. However, as the proposed development includes more than 150 dwellings, it does fall within one of the categories of development within the EIA regulations for which an EIA may be needed depending on whether it is likely to have significant effects on the environment by virtue of its nature, size or location.

THE APPLICATION SITE

The site occupies approximately 4.69 hectares (ha) and sits in a predominantly residential community and within walking distance to local shops, nurseries, schools, and public transport.

Nearby uses include St Richard's Church of England primary school, Ham Day Centre and St Richards Church to the west of the site. To the east, is Grey Court School and other community facilities along Ham Street, including a library, shops and a public house.

The surrounding area is largely a low density residential character, comprising a mix of two and three storeys housing and blocks of flats, interspersed with civic buildings. To the east of the site, along Ham Street, more historic buildings are located, containing various 18th century listed mansions, terraced cottages and almshouses with a mix of styles and traditional materials.

Ham Close is a rectangular area bordered by Ashburnham Road, Ham Street, Wiggins Lane and Woodville Road. The current buildings on site are a series of three, four and five storey blocks. The buildings are brick with pebbledash and have flat roofs. The estate is served by two roads which wind their way between Ashburnham Road and Woodville Road. The Youth Centre and Ham Clinic sit within part of the existing development however Ham Clinic is not included within the regeneration site.

Two green spaces bookend Ham Close – Ham Village Green and St. Richards's School Playing Fields.

Figure 1.1 Existing site and adjacent areas



Figure 1.2 Existing site plan



Existing Accommodation

The existing Ham Close consists of 192 homes of which 143 are affordable tenanted (69%), 30 are private leaseholders, 19 are leaseholders bought by RHP (housing association).

Ham Close consists of the following accommodation:

- 48 x studio (25%)
- 60 x 1 bed (31.3%)
- 63 x 2 bed (32.8%)
- 21 x 3 bed (10.9%)

Transport and Infrastructure

The 371 bus has a stop along Ashburnham Road on the southern boundary of the site. This route runs between Kingston and Richmond Rail Station, and the service operates at 8-9 minute intervals during peak service hours. Bus routes K5 and 65 also operate in the vicinity of the site, providing connections to Richmond and Kingston.

There are no train stations within typical walking distance (800m). The closest railway station to the site is Richmond Railway and Underground Station, approximately 3km away, which is currently approximately a 20 minute journey on the 371 bus, an 11 minute drive by private car, or a 50 minute walk. Richmond Station is a National Rail station on the Waterloo to Reading Line (South Western Railway), District Line and North London lines. There is also a London Underground and London Overground station at Richmond Station, with the next station being Kew Gardens for both.

This site is not within a Controlled Parking Zone (CPZ). Existing parking on site comprises 228 informal parking spaces and 47 garages.

In the immediate location, there is a small parade of shops as well as a Tesco Express to the west of the site. Further shops and pubs are located on Ham Street. NHS facilities, Churches, a Primary School and Secondary School are adjacent to or within a 5 minute walk from the site.

WHAT IS PLANNED FOR THE SITE?

Planning Description

The proposed development is for:

'Demolition of existing buildings on-site and phased mixed-use development comprising 452 residential homes (Class C3) up to six storeys; a Community/Leisure Facility (Class F2) of up to 3 storeys in height, a "Maker Labs" (sui generis) of up to 2 storeys together with basement car parking and site wide landscaping'.

Masterplan

Residential

Across the Masterplan there are five distinct masterplan spaces containing 23 buildings (see Figure 1.3):

- Village Green (Apartment Blocks O, M, V & U). This area fronts Ham Village Green and contains four buildings. The scale and massing of these blocks sit at 4 storeys to the north and south and steps up in the centre to 5 storeys, with a setback 6th storey. The building mass of these blocks focus on vertical and slim proportions to front the Village Green. The streets are pedestrian access only.
- Linear Park (Apartment Blocks E, I, M, C, S, R & V). This area focuses on the larger apartment blocks which line the linear park. These blocks have a uniform scale and massing with heights of 5 storeys and 6 storeys (top floor set back). The blocks are laid out in a linear pattern responding to the long nature of the park running east-west. Within this character area the blocks respond with different architectural vernaculars to create variation across the scheme. The streets are pedestrian access only.
- Ashburnham Road (Apartment Blocks A, G & K). This character area encompasses smaller apartment blocks and houses to the south of the site. Within this area there is a maximum height of four storeys to respect neighbouring homes, Ham Clinic, and the primary school. Street design involves central streets leading to the linear park, with turning head. There is a central mews street with shared surface for both vehicles and pedestrians.

- Woodville Road (Apartment Blocks W, D, P, Q & T). Much like the Ashburnham Road Character Area, Woodville Road Character Area includes smaller apartment blocks and houses at a maximum of 4 storeys. Street design includes central streets leading to the linear park with a turning head.
- Central Streets (Apartment Blocks B, F, H, J, L & N). This is an intermediate area connecting the Linear Park with perimeter blocks fronting Ashburnham Road. There is a mixture of houses and smaller apartment blocks at 4 and 3 storeys to create a step in height between Linear Park blocks and houses to Ashburnham Road. Street comprises streets leading to the linear park with turning head. There is a central mews street with shared surface for both vehicles and pedestrians.

Community Facilities

Non Residential Floorspace comprises of “Maker Labs” and a “Community Centre” which are being re-provided.

Table 1.1 Non-Residential Floorspace

	Existing m ²	Proposed (GIA) m ²	Proposed (GEA) m ²	Proposed External Areas m ²
Community Centre	576	716	1179	183
Maker Labs	57	130	164	33

The new community centre will be a stand alone building purposefully set apart from the housing element of the regeneration. The bespoke design aims to provide multifunctional rooms and spaces for a variety of activities. These can be used not only by the residents of Ham Close but also the wider community and specialist groups beyond Ham.

Alongside the needs of the current Youth Centre, the facility will also re-provide and improve on the accommodation currently used by the body TAG (Youth club for disabled young people). The new centre will also be open for use by other community groups based locally in the area so that much of the accommodation within the centre will be multi-used and multi-occupied at different times of the day.

The Makers Labs will also be a stand-alone building re-providing the existing space on site. The Makers Labs is a space for people with an interest in DIY and craft. The existing space includes computer facilities, electronics lab, laser cutting, 3D printing, CNC (computer numerical control) machinery, metal lathe, kitchen facilities and informal wood shop.

Figure 1.3 Aerial View



Figure 1.4 Masterplan spaces



Figure 1.5 Indicative Masterplan



Landscaping

The design principles that form the basis of the landscaping on the site are summarised below:

- Response to Context - The landscape proposals blend the riparian naturalistic landscape of Ham lands Nature Reserve (320m southwest) and Ham Village Green, with more formal interventions as seen at Ham House and in the surrounding urban estates.
- Biodiversity and Habitat Creation - Richly planted public and communal landscapes promote biodiversity gain, urban greening, and living streets. Planting will reference the context, with uses of wildflowers, ornamental grasses, and trees such as Birch, Willow, Maple and Lime, all prevalent across Ham.
- Play and Activity - Play opportunities thread through the landscape with concentrations of new equipped space.
- Healthy Spaces and Active Travel - Active travel is embedded in the proposed street arrangement, minimising car movements to promote safe community focused public realm. Streets link to a wider network of car free footpaths, encouraging cycling, walking, and running.
- Community Space - Courtyards and green space promote sustainable communities, providing inclusive places for people to meet, and socialise.
- Sustainable Principles - Provision of features for the sustainable conveyancing of surface water. Richly planted swales, biodiverse roofs, and native planting, will maximise surface water storage and biodiversity.

Figure 1.4 shows the indicative masterplan with associated landscaping.

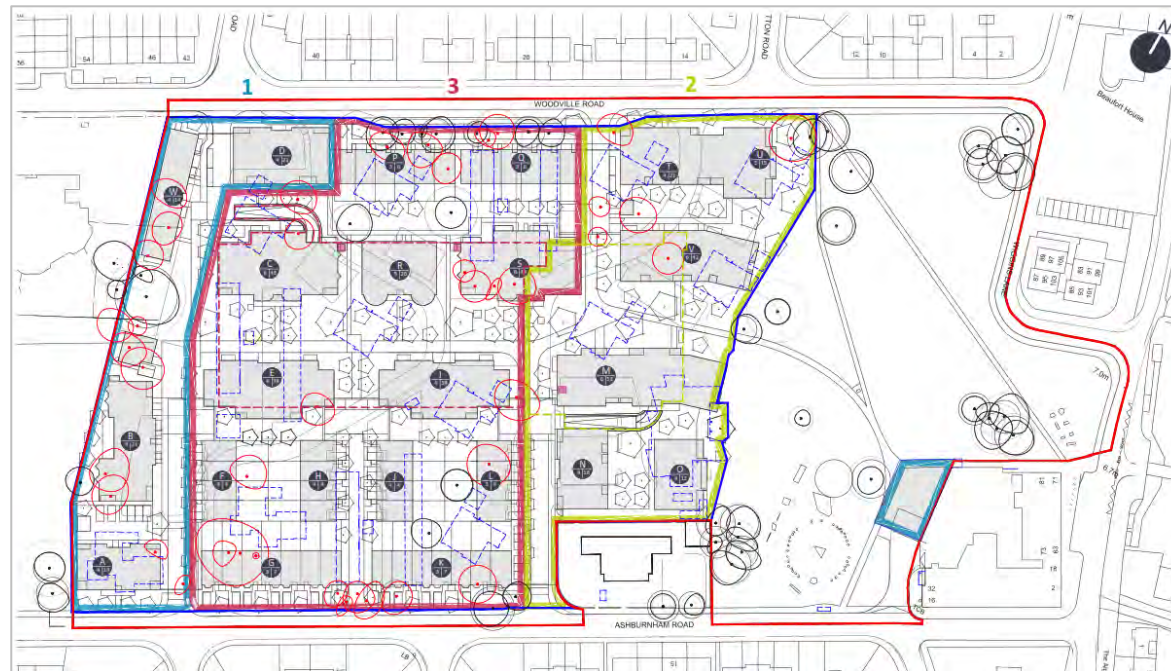
Phasing and Programme

The works associated with the development are due to start in the spring of 2023 and would take up to approximately seven years to complete in full, with a three phase build out anticipated at this stage working from the western end of the site, followed by the eastern side and then the centre of the site. A summary of the current phasing strategy is provided below:

- Phase 1 is expected to commence in March 2023 and include the demolition, construction, and delivery of the western end of the site, including Blocks A, B, D, W and the community centre. Phase 1 is anticipated to be concluded in October 2024.

- Phase 2 is expected to commence in October 2024 with the demolition of the buildings in the east of the site for the construction of Blocks M, N, O, T, U, V and the first half of the basement carpark. Phase 2 is due for completion in May 2027. All residentials shall be rehoused by the end of Phase 2.
- Phase 3 is expected to commence in May 2027 with the demolition of the central site area and the construction of Blocks C, E, F, G, H, I, J, K, L, P, Q, R, S and the second half of the car park. Phase 3 is due for completion in March 2030.

Figure 1.6 Phasing Plan



WHAT ARE THE ALTERNATIVES TO THE PROPOSED DEVELOPMENT?

In accordance with good practice, alternative scenarios have been considered where feasible as follows:

1. 'Do Nothing' scenario – nothing is brought forward on the site;
2. Alternative locations – other sites are considered as a location; and
3. Alternative designs – the site and consented uses remain but design variations are considered.

'Do Nothing'

The 'Do Nothing' scenario would generally assume that no development is carried out and the current status of the application site remains unaltered. In such a scenario the existing residential blocks, youth centre, landscaping, road layout and parking would remain.

The flats are generally of poor construction, with poor insulation by modern standards, and many have condensation and damp issues. The blocks of flats do not have lifts, thus leaving a number of flats inaccessible to people with disabilities. There would be no opportunity to enhance homes for existing residents, improve the site's connectivity or enhance the setting of Ham Village Green. The existing youth centre would remain as an under-utilised space.

The site is identified for a mixed use redevelopment in the adopted Local Plan³ Policy SA 15, Ham and Petersham Neighbourhood Plan (Policy O3) and the draft Regulation 18 Local Plan in Policy SA 22. The adopted Local Plan Policy SA 15 states that '*comprehensive redevelopment of this site, including demolition of the existing buildings and new build re-provision of all residential and non-residential buildings, plus the provision of additional new residential accommodation, will be supported.*'

The 'Do Nothing' scenario would result in the proposed development not coming forward, thus not fulfilling Policy SA 15 of the adopted local plan. It would not deliver the mixed use regeneration ambitions for the site nor the redevelopment of the community centre. It would not contribute to the housing numbers upon which various planning policy documents and land supply projections rely.

The 'Do Nothing' scenario is therefore not an acceptable alternative, as this scenario would fail to deliver the aspirations within adopted local policy.

Alternative Locations

The mention of the site as a strategic allocation in the adopted Local Plan, Ham and Petersham Neighbourhood Plan and emerging Local Plan suggests that alternative locations for the scheme are not suitable.

Alternative Designs

The design has evolved in response to the consultation undertaken. The scheme has been developed through close and meaningful dialogue with the local community, London Borough of Richmond upon Thames (LBRuT), and other stakeholders. The relevant consultation, and associated design development, is summarised below.

Initial Work 2013-2018

Work on the regeneration of Ham Close began in 2013. The architects (BPTW), appointed by the applicant, carried out options appraisals and were viability tested for the following regeneration options;

- Refurbishment;
- Partial Infill development; and
- Full scale development.

Various options of expanding the site boundary were also tested to see if they would benefit the regeneration this included options on building on Ham Village Green and utilising the shops and Library to help towards a comprehensive development.

Building on the Village Green and redevelopment of the shops was later dismissed following stakeholder engagement however, expanding the boundary on the western edge was agreed. Throughout this time, engagement took place with residents of Ham Close, local residents and community groups. This was done through a combination of different methods including, door knocking, posters on notice boards, workshops, regular newsletters, website updates and drop-in sessions. Groups which were regularly engaged with during this period included:

- Ham Close residents;

- Ham residents;
- Resident Engagement Panel (REP); and
- Stakeholder Reference Group (SRG).

The Figure 1.7 below diagram illustrates the scheme that formed the basis of the masterplanning brief.

Figure 1.7 Masterplanning Brief Masterplan



Key Masterplanning Design Principles

The community consultation process discussed above that BPTW carried out with the applicant defined the 'Key Masterplanning Design Principles' that were important to the local residents and stakeholders.

These principles were developed from 5 key overarching aims for the regeneration of Ham Close:

- Develop an approach that responds to the unique and distinctive character of the Ham Close neighbourhood: variegated in building form with richness in detail and materiality.
- Create a masterplan based around a legible street network and attractive landscaped amenity spaces, with clear delineation of public and private space.
- Retain and enhance existing green spaces and trees wherever possible, developing strong and attractive connections that strengthen local connections.
- Incorporating servicing and car parking within the masterplan, without compromising the townscape qualities.
- Produce housing typologies that optimise the quality of living spaces, comfort and outlook for existing and new residents of Ham Close.

These principles informed the following preliminary masterplan (Figure 1.8).

Figure 1.8 Preliminary Masterplan



Masterplan Development

Figure 1.9 summarises the relevant design development of the masterplan following a series of meetings with LBRuT, Richmond Design Review Panel and the Greater London Authority.

From these meetings feedback was received on the on the layout and massing of the masterplan design proposals.

WHAT ARE THE MAIN CONSTRUCTION ACTIVITIES ANTICIPATED?

The following main activities are anticipated for each phase (where relevant):

- Site setup and demolition;
- Basement excavation and piling (foundations);
- Sub-structure (lower part of building below ground level);
- Super-structure (Part of building above ground level);
- Cladding (Exterior finishes of buildings); and
- Fit-out, testing and commissioning.

HOW IS CONSTRUCTION DESIGNED TO MINIMISE ENVIRONMENTAL IMPACTS?

Table 1.2 below presents an overview of the potential impacts arising as a result of demolition and construction activities, and summarises the actions proposed to mitigate these. Further detail of the mitigation actions is discussed in detail within the relevant Technical Chapters of the ES and are incorporated into the outline Construction Environmental Management Plan.

Table 1.2 Construction Impacts and Mitigation

Potential Impact	Mitigation
Construction traffic	Introduction of secure site hoarding and pedestrian routing plans where necessary to ensure that conflict between pedestrians / cyclists are limited and controlled with construction traffic are incorporated into the Construction Environmental Management Plan.
Generation of dust during construction	A range of measures to be incorporated into a Dust Management Plan which may form part of the Construction Environmental Management Plan. These include (but are not limited to): <ul style="list-style-type: none"> • No idling vehicles;

Potential Impact	Mitigation
	<ul style="list-style-type: none"> • Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practical; • Impose and signpost a maximum speed limit of 15mph on surfaced roads and work areas and 10mph on un-surfaced haul road and work areas; • Dust suppression; • Storage of materials to avoid dust creation; and • Regular inspections.
Noise from vehicles and plant	<p>Best practice measures will be incorporated into the Construction Environmental Management Plan. These include (but are not limited to):</p> <ul style="list-style-type: none"> • Good maintenance of internal haul routes; • Selection of quiet equipment; • Good equipment maintenance; • Minimising metal-on-metal impacts during construction of steel structures; and • Installing full or partial enclosures around noisy equipment.
Destruction of below ground archaeology	Implementation of geo-archaeological and archaeological investigation work (secured by planning condition).
Mobilisation of contamination	Implement Construction Environmental Management Plan and remediation plan, including removal of any contamination.
Impacts on general onsite and offsite ecological receptors	<p>Recommendation incorporated into Construction Environmental Management Plan:</p> <ul style="list-style-type: none"> • Badger protection measures. • Updated bat roosting assessment prior to Phase 2 and 3. • Sensitive clearance for birds and hedgehog.

SCOPE OF THE ENVIRONMENTAL STATEMENT

The process of scoping allows the development of a comprehensive and balanced ES. It is essential to determine those aspects that require detailed assessment, and to consider comments and positions of affected stakeholders. LBRuT issued a formal scoping opinion in January 2022 including information and views from a range of statutory and non-statutory bodies.

The EIA Regulations require that where significant environmental impacts are likely to occur, they should be considered through the EIA. Several topic areas were excluded from detailed consideration within the ES either because no significant effects were anticipated, or impacts were addressed in other application documents or ES Chapters. These topic areas included:

- Transport;
- Water Resources and Flood Risk;
- Daylight, Sunlight and Overshadowing;
- Human Health;
- Risk Assessment;
- Waste; and
- Wind Microclimate.

A summary of the impact assessment of the key environmental considerations identified as requiring detailed assessment within the ES can be found subsequently.

HERITAGE, TOWNSCAPE AND VISUAL

An assessment has been undertaken into the likely effects of the proposed development on heritage, townscape and visual receptors. The assessment has taken into account the effects on heritage receptors through an assessment of their heritage importance and the contribution that their setting makes to this importance, as well as the change to the setting that would arise as a result of the proposed development. In terms of

townscape effects, the assessments considered the baseline conditions of relevant townscape character areas and how the proposed development would change their character, either directly or indirectly, depending on their interrelationships and inter-visibility. In terms of the effect on visual amenity, the effects on visual receptors arising from changes to 22 townscape views were assessed.

The assessment as a whole is informed by 22 accurate visual representations also known as 'verified views'. The verified views are a tool to inform the assessment of impact to heritage, townscape and visual receptors. The location of the viewpoints was informed by architectural and historic accounts of the area, an appraisal of the existing site and surroundings, and relevant policy designations. The viewpoint locations were agreed with LBRuT during pre-application discussions and scoping consultation.

The assessment followed best practice guidelines from the Guidelines for Landscape and Visual Landscape Assessment (GLVIA) Third Edition (2013), the Character and Context Supplementary Planning Guidance, Mayor of London (2014) and Historic England guidance on assessing heritage assets.

A site survey of the baseline situation was undertaken to understand the immediate setting of the site, the setting of the surrounding heritage receptors, the townscape character and appearance, and key viewpoints.

The baseline for the assessment included:

- 2 Conservation Areas – areas in Richmond designated for their historic interest.
- 23 Listed Buildings – specific buildings protected for their special architectural and historic interest.
- 1 Registered Park and Garden – classification similar to listed building but for Parks and Gardens.
- 25 non-designated heritage assets - buildings, monuments, sites, places, areas or landscapes with some heritage significance.
- 2 Townscape Character Areas – areas recognised as having a distinctive character.

With regards to the existing site, all the buildings on site appear to date to the 1970s and are of no architectural merit. The buildings are designed and oriented in a disparate layout, for instance the five storey blocks are oriented at 45 degrees to the street line. The buildings don't face the street, creating a leaky frontage to Ashburnham and Woodville Road, with minimal activity along the street. As a result of surface parking and the

disparate layout of the buildings, the site is less permeable with poor legibility and a poor sense of place. There is no provision for private residential amenity, as all the landscaped areas are not secured and are therefore accessible by the public.

Both the townscape and architectural qualities of the site and the existing buildings are poor and would benefit from redevelopment of a better standard.

The massing of the proposed development is arranged to respond to the baseline condition, constraints and other sensitivities of the site and its context, such as the following: the existing main sewer line, the existing areas of townscape importance to the immediate eastern and western sides of the site. In addition, these elements are designed and arranged for the following reasons: to reduce its impact on the surrounding streets and buildings; to respond sensitively on the issue of height for the proposed buildings on Ashburnham Road and their impact on the existing Clinic; to reduce impact on the western edge and boundary where the proposed Maker Labs are located; and finally to reduce the impact of the proposed block on the eastern side where Ham Village Green is located.

Overall, the arrangement of the proposed massing, height and the proposed block's orientation is based on best practice urban design with optimum separation distances between blocks, as well as the objective of creating a new green link through the centre of the site and the proposed blocks to Ham Village Green.

The intention of the design, massing, scale and form of the buildings is to improve the existing disparate orientation and poor urban design and public realm conditions of the existing blocks and site, as well as to improve the greening on the site, to integrate better with its immediate and wider context.

The proposed development has been through a thorough consultation prior to submission of the application, which has informed design development. Measures proposed to prevent, reduce or offset any significant adverse effects have been identified and developed as part of the pre-application process. The primary mitigation measures have become embedded into the project design, commonly referred to as embedded mitigation.

Except for the effects during demolition and construction, which are temporary, the effects found in the assessment as a result of the proposed development are largely expected to be either neutral or beneficial for the surrounding heritage, townscape and visual receptors.

ARCHAEOLOGY

An assessment has been undertaken to identify the likely effects of the construction and operational phases of the proposed development on archaeological remains. The assessment incorporates the results of an Archaeological Desk Based Assessment, which includes a Geoarchaeological Desk Based Assessment. The assessment has been informed by the following guidance:

- National Planning Guidance (July 2019);
- Chartered Institute for Archaeologist's Standards and Guidance for Desk Based Assessments (2017); and
- Historic Environment Good Practice Advice in Planning Note 2: Managing Significance in Decision-Taking in the Historic Environment.

The site and 1km surrounding study area contain no designated archaeological assets. As such, no indirect effects to the setting of the designated assets have been identified, and therefore, the effects of the completed development have not been assessed.

Potential for unidentified, previously unrecorded archaeological remains has been identified using recent geotechnical site investigations, the historical development of the site, and proximity to known occupation sites and Archaeological Priority Areas. The Archaeological Priority Area for Ham Fields is west of the site and Archaeological Priority Area for Ham is east of the site, where there is potential for prehistoric occupation. There is high potential for fragmentary buried remains associated with 18th century Manor Farm in the east of the site (Ham Village Green). However, it is noted that the proposed development retains this eastern area as open space and no physical impact in this area is proposed. The western part of the site is historically agricultural and there is low potential for significant occupation evidence from the historic periods. Therefore, based on available evidence, the proposed development is considered to have the potential to effect fragmentary early prehistoric evidence of local heritage significance.

Construction activities associated with the proposed development, such as building foundations and infrastructure excavations, have the potential to physically impact the fragmentary early prehistoric evidence. Proposed mitigation measures include a staged programme of archaeological work to allow for the identification of archaeological assets. If present, a suitable mitigation strategy will be developed and agreed with LBRuT and their archaeological advisors. It is recommended that the programme of further works includes provision for geoarchaeological evaluation. It is also

recommended that a programme of public outreach is also secured as a condition of planning. The resulting research will contribute to the increased knowledge and understanding of the landscape and settlement evolution of the wider area.

Following the mitigation recommended, there will be no significant impacts on potential archaeological receptors.

AIR QUALITY

An assessment has been undertaken into the likely effects of the construction and operational phases of the proposed development in terms of air quality. The assessment uses Land Use Planning and Development Control Air Quality guidance produced by the Environmental Protection UK and Institute of Air Quality Management, along with guidance produced by the Institute of Air Quality Management on the assessment of emissions from construction activities.

LBRuT regularly review and assess air quality in accordance with the Department for Environment, Food & Rural Affairs' (DEFRA) requirements. Data obtained from three of these automatic monitoring stations, a non-automatic monitoring station (monitors NO₂ using passive diffusion tubes), and background concentrations of pollutants taken from the DEFRA background maps were used to establish the baseline conditions. Traffic data was provided by the project transport consultants (Velocity).

Potentially sensitive human receptors identified for the assessment included a number of adjacent residential buildings, the school and residents of Ham Close (both present and future residents owing to phased nature of the development). The site of the proposed development is located within an Air Quality Management Area designated owing to exceedances in nitrogen dioxide and particulate matter objectives.

Dust and particulate matter will be released as a result of construction activities. However, through good site practice and the implementation of suitable mitigation measures, as incorporated into a detailed Construction Environmental Management Plan (including Dust Management Plan), the effect of dust and particulate matter releases will be effectively mitigated. These mitigation measures include the following:

- Displaying contact details and names for the person accountable for air quality and dust issues on site;
- Recording all dust and air quality complaints and incidents;
- Regular site inspections;

- Avoiding the use of machinery and dust causing activities near the sensitive receptors;
- Use dust screens or barriers;
- Suppressing dust;
- Minimising drop heights;
- Avoiding bonfires and burning of waste materials; and
- Monitoring in compliance with Dust Management Plan.

The implementation of a Construction Logistics Plan and Travel Plan will effectively mitigate any increase in pollutant concentrations from construction traffic and plant.

The Advanced Distribution Management Solutions (ADMS) Roads model has been used to assess the operational impacts associated with the proposed development. This has shown that operational traffic associated with the development would have a negligible impact on local air quality.

Future/existing occupants of the proposed development would not be exposed to pollutant concentrations above the relevant objective levels, therefore the impact of the proposed development with regards new exposure to air quality is considered to be negligible.

Traffic generated by the proposed development is predicted to have an insignificant impact on pollutants (specifically Nitrogen-deposition rates and airborne nitrogen oxides concentrations) within Richmond Park. Richmond Park has multiple designations and is of international importance for wildlife conservation.

NOISE AND VIBRATION

An assessment has been undertaken into the likely effects of the construction and operational phases of the proposed development in terms of noise and vibration. The assessment has been carried out following multiple pieces of guidance including British Standards BS 5228-1:2009+A1:2014, BS 4142:2014 and the Design Manual for Roads and Bridges.

A baseline survey was undertaken between 3rd and 7th December 2021. The purpose of the noise survey was to gather acoustic information on the baseline noise levels at the site during daytime and night-time periods.

During the construction phase, the highest noise levels are predicted to be from plant, usually associated with earthworks, piling, concreting, road paving and general construction activities on site. To control noise levels best practice measures will be incorporated into a detailed Construction Environmental Management Plan. Contractors will be required to ensure that works are carried out in accordance with best practice measures including (but not limited to):

- Using 'silenced' plant and equipment where possible;
- Switching off engines when vehicles are not in use;
- Fitting acoustic enclosures to suppress noisy equipment;
- Operating plant at low speeds and incorporating automatic low speed idling;
- Electrically driven equipment will be selected in preference;
- All plant will be properly maintained; and
- All contractors will be made familiar with the guidance in BS 5228 (Parts 1 & 2).

Given the proximity of the construction works to residential receptors, including existing and future residents of Ham Close, residents will experience significant noise levels. However, this will be temporary and for short periods.

Building design measures will ensure that environmental noise and vibration inside the completed development's residences is at an acceptable level. Limits on noise levels from fixed plant will ensure external noise levels on public and private amenity areas is also at an acceptable level.

GROUND CONDITIONS AND CONTAMINATION

The likely ground conditions and contamination effects associated with both the existing site conditions and the construction and operation of the proposed development have been identified and assessed. The ground conditions baseline for the site was established based on previous studies and reports, including the series of Geo-environmental reports and a Basement Impact Assessment.

Ground investigations revealed Made Ground (soil that has been subjected to human intervention) beneath the site at depths varying between 0.4m below ground level (bgl) and 1.20 m bgl. Superficial deposits of Kempton Park Gravels were encountered directly beneath the Made Ground

at all locations. The superficial deposits are classified as a Secondary A Aquifer (a deposit that can support local water supplies). Bedrock deposits of London Clay Formation were recorded in deep boreholes below 5.2m bgl. The London Clay is then underlain by the Lambeth Group, Thanet Sands and White Chalk at depth.

The nearest surface water course to the site is a drain approximately 295m to the southwest. However, this is considered to be too distant to be significantly impacted by the site.

Construction activities associated with the proposed development pose potential risks to construction/site workers, controlled waters, air quality, landfill and surrounding site users. To mitigate these risks, implementation of the following measures has been advised:

- A Construction Phase Plan will be prepared in accordance with the Construction Design and Management Regulations (2015).
- Appropriate Personal Protective Equipment and Respiratory Protective Equipment will be used to prevent harm to human health.
- A detailed Construction Environmental Management Plan will be developed and implemented.
- A Materials Management Plan, in accordance with CL:AIRE Definition of Waste Code of Practice, will be used to control the re-use of 'waste' materials.
- All consents and licences are to be in place before works commence.
- Attention will be given to the storage and use of fuels for the plant on site.
- Any storage and handling of flammable liquids (defined as any liquid with a flash point of 55°C and below) will be required to conform to the Chemicals (Hazardous Information and Packaging for Supply) Regulations and HSG51 (HSE, 1998). and
- Environment Agency Regulatory Position Statement (June 2011): Managing concrete wash waters on construction sites: good practice and temporary discharges to the ground or to surface waters, should be followed.

The operational phase of the proposed development poses potential risks to future site users, controlled waters, land and soil quality and infrastructure (buildings, materials and services). To mitigate potential risks the following specific mitigation measures will be implemented:

- Where Made Ground is encountered, cover with imported clean topsoil and subsoils over a geotextile membrane in areas of soft landscaping. This capping layer will need to be a minimum of 600mm thick in private gardens.
- Completing a Piling Risk Assessment to assess potential impact to controlled waters, the deeper Chalk, and Lambeth aquifers at depth.
- Upgrade materials where required to protect against ground conditions – e.g. upgraded water supply pipes, higher concrete classification.
- Use interceptors in the drainage system to capture any minor fuel leaks from car parking areas.

ECOLOGY

The likely ecological effects associated with the proposed development have been assessed during both construction and operational phases. The assessment utilised the 'Guidelines for Ecological Impact Assessment' Chartered Institute of Ecology and Environmental Management.

The ecological context of the site was reviewed using environmental databases (including Defra's Multi-Agency Geographic Information for the Countryside website). A biological records search from Greenspace Information for Greater London identified the location and citations of local designated sites and presence of records for notable and protected species.

There are designated sites of national or international importance within the site boundary. However, Richmond Park which is covered by three statutory designations is located 1.3km from the site. There are two Local Nature Reserves of local importance within a 2km radius of the site and 18 Sites of Importance for Nature Conservation (SINCs) within 2km of the site boundary (also of local importance).

A Preliminary Ecological Appraisal walkover was conducted on the 8th and 14th September 2021 to survey the habitats present on the site. Habitats identified on site include buildings and hardstanding, modified grassland, scattered trees and introduced shrub. Building and hardstanding habitats are considered to be of limited ecological value. The habitats present have the potential to support the following notable species/species groups:

- Badgers;
- Bats;
- Birds; and
- Hedgehogs.

The existing buildings and trees were assessed to determine their potential to support roosting bats. Bat emergence and re-entry surveys were undertaken between 21st and 29th September 2021 to confirm the current baseline. No roosting bats were recorded.

The following measures will be implemented:

- All retained habitats will be suitably protected from construction activity disturbance by appropriate fencing;
- The root protection zone around trees shall be fenced off prior to commencement of works to ensure that roots are not damaged;
- The potential of fuel and other spillages during construction will be minimised through rigorous development management, including a contingency plan, should an accident occur;
- Any hazardous material used would be kept in dedicated stores, and storage tanks would have appropriate buildings;
- Badger protection measures will be implemented across the construction site;
- An updated bat scoping survey will be undertaken prior to commencement of works on Phase 2 and 3;
- Artificial lighting will be minimised during construction;
- The lighting installed will not create unnecessary light spill onto sensitive areas (e.g. Ham Village Green). There will be no uncontrolled lighting; the lighting will be switched off when not in use;
- Landscaping proposals for the completed development included ecological enhancements such as, biodiverse living roofs, flower rich perennial planting, SuDS planting, wildflower grassland, green walls, integrated bird and bat boxes, stag beetle loggeries, and invertebrate habitat features; and
- The clearance/demolition of the vegetation and buildings with nesting bird potential/confirmed nesting activity will be undertaken outside of nesting season or after a qualified ecologist has confirmed absence.

The mitigation and protection measures have been incorporated into the outline Construction Environmental Management Plan produced for the application. Detail of the compensation and enhancement measures have been incorporated into an Ecological Management Plan. Following the implementation of these measures, the proposed development will have an overall permanent positive impact for many ecological receptors and

for local biodiversity. The Biodiversity Net Gain assessment demonstrates that there will be over a 30% total net increase in ecological value post development. This is significantly above the 10% requirement set out in the Environment Act.

SOCIO-ECONOMIC

The assessment included all relevant likely socio-economic effects, as identified in national, regional and local policy. There is no specific quantitative, socio-economic methodology. Consequently, a quantitative analysis of potential social and economic benefits has been undertaken using the 'Additionality Guide', published by the Homes and Communities Agency (4th edition) (2014) which is a standard method.

A Health Impact Assessment has also been prepared setting out the wider health impacts of the proposed development in accordance with the Healthy Urban Development Unit (HUDU) (2017 and 2019) guidance.

The proposed development is located in Ham, Petersham and Richmond Riverside ward in the London Borough of Richmond upon Thames. Baseline conditions were established through a desk-based assessment which gathered data from a number of data sources, including the 2011 Census.

In terms of education services, the baseline assessment found 4 nurseries within 1 mile of the site. There are also 3 primary schools within 1 mile of the site and 6 secondary schools within 2 miles. In terms of healthcare services, the assessment identified 1 GP surgeries within 1km of the site and 4 dentists within 2km of the site. Ham Youth Centre is an existing community facility on-site. There are 3 other existing community facilities near the site as well as a library, a leisure centre and a variety of parks.

The proposed development would provide 32 full-time jobs each year in Richmond during the construction period and 2-5 full-time jobs in the LBRuT during operation. This is an increase of 1-3 full-time jobs compared to the existing site. It is recommended that additional local skills and employment opportunities are secured through the Section 106 Agreement to be provided to LBRuT residents during construction.

The 452 new homes will be a range of sizes and include the provision of 221 affordable homes (reprovision of the 143 existing affordable homes and addition of 78 new affordable homes). New residents will increase spending in the LBRuT economy by £4 million each year. New and enhanced open space, play space and public realm improvements are also proposed.

The proposed development will reduce capacity at local nurseries, primary schools, secondary schools and primary healthcare.

However, financial contributions will be provided to LBRuT in the form of local Community Infrastructure Levy (CIL) contributions for local primary schools, secondary schools and community facilities.

CLIMATE CHANGE

An assessment was undertaken into likely effects of climate change on the resilience of the proposed development, a summary of the likely significant in-combination climate impacts identified within other EIA technical areas, and an assessment of the likely significant impacts of the proposed development's direct and indirect release of greenhouse gas emissions. This assessment has been prepared in accordance with the latest IEMA Guidance on greenhouse gas and climate change resilience assessments.

Greenhouse gas emissions resulting from construction materials and activity will be mitigated to an insignificant level by following the measures in the Construction Environmental Management Plan, the Travel Plan, through the selection of sustainable materials, including low embodied carbon, and designing out waste.

The most significant climate risks to the site end users include overheating in homes and associated health impacts, soft landscaping failure and associated loss of services, water shortages for public use and landscaping. Mitigation measures have been included within the design to mitigate these impacts in the operational phase to mostly negligible, including:

- The overheating risk is addressed using passive and active design measures, including natural and mechanical ventilation, and balconies and overhangs which create shading;
- The soft landscaping failure and loss of associated ecosystem services risk will be mitigated using resilient and biodiverse planting to maximise surface water storage and biodiversity; and
- The water shortages risk shall be mitigated using water efficient sanitaryware, designed to meet a maximum water consumption rate of 105 litres per person per day.

To reduce greenhouse gas emissions from energy during site operation, proposed mitigation measures include:

- Passive design measures include energy-efficient building fabric, insulation to all heat loss areas, double-glazed windows, low-energy lighting, and efficient heating and ventilation systems;

- Provision of an Air Source Heat Pump network, capable of connecting to any future District Heat Network should one become available; and
- Solar photovoltaics shall be included on suitable roof spaces.

Following the mitigation measures outlined above, energy emissions totals for the completed development will be a significant improvement compared to the greenhouse gas energy emissions at the existing site given the low fabric efficiency of the existing buildings.

The completed development's transport emissions shall be mitigated through the implementation of a Travel Plan encouraging sustainable transport, and through the provision of secure cycle storage.

CUMULATIVE IMPACTS

There are two main types of cumulative impact which are considered within the ES:

- Type 1 - Combined effects of individual residual impacts, for example noise, dust and visual impacts, from one development on a particular receptor; and
- Type 2 - Residual impacts from several developments, which individually might be insignificant, but when considered together, there could be a significant cumulative impact.

No significant combined effects were identified.

The schemes considered in the Type 2 assessment were the following:

- Site Allocation 17 – St Michaels Convent, 56 Ham Common, Ham, Richmond, TW10 7JH;
- 1-1c King Street, 2-4 Water Lane, The Embankment and Ricer Wall, Water Lane, Wharf Lane and the Diamond Junilee Gardens, Twickenham;
- St Johns and Amyand House, Strafford Road, Twickenham;
- Old Station Forecourt, Railway Approach, Twickenham;
- Land at Junction of A316 and Langhorn Drive and Richmond College Site;

- Ryde House 391, Richmond Road, Twickenham, TW1 2EF; and
- Lockcorp House, 75 Norcutt Road, Twickenham, TW2 6SR.

Allocated Sites in Adopted Local Plan Considered within Assessment:

- SA 16 Cassel Hospital, Ham Common, Ham;
- SA 8 St Mary's University, Strawberry Hill;
- SA 5 Telephone Exchange, Teddington;
- SA 6 Teddington Delivery Office, Teddington;
- SA 7 Strathmore Centre, Strathmore Road, Teddington.

All technical assessments completed as a part of the EIA considered the potential cumulative impacts to arise from the proposed development interacting with impacts associated with the above schemes. No additional significant adverse cumulative impacts were identified.

CONCLUSION

Where the proposed development has the potential to generate environmental impacts during both the construction and operational phases, a range of mitigation measures have been recommended to address these. Furthermore, the incorporation of high quality architectural and landscape design within the proposals will have benefits for both people and nature, on site and in the surrounding area.

A summary of the potential impacts (pre-mitigation), the proposed mitigation and the final impacts (post mitigation) is provided in Table 1.3 at the end of this document.

FURTHER INFORMATION

A digital copy of the ES is available through the Richmond upon Thames Council website (<https://www.richmond.gov.uk/>). In addition, electronic copies (CD or USB flash drive) of the full ES are available free of charge from:

Greengage Environmental Ltd.

Telephone: 020 3544 4000

Email: info@greengage-env.com

Comments on the planning applications should be forwarded to the Council at the address below:

Civic Centre,

44 York Street,

Twickenham,

TW1 3BZ

Table 1.3 Summary of potential impacts (pre-mitigation), proposed mitigation and final impacts (post-mitigation)

ES Assessment Topic	Potential Impacts Pre-Mitigation	Proposed Mitigation	Final Impact Post-Mitigation
Heritage, Townscape and Visual	<ul style="list-style-type: none"> The proposed development will change views and townscape character in the area. The intention is to improve the existing disparate orientation and poor urban design and public realm conditions at the site. The development should improve greening on the site and allow for better integration with the immediate and wider site context. 	<p>Construction phase mitigation:</p> <ul style="list-style-type: none"> Hoarding shall be used where appropriate during demolition and construction. 	<ul style="list-style-type: none"> Visuals effects of construction activity are unavoidable, temporary, and commonplace in London. The completed development is largely expected to be either neutral or beneficial for the surrounding heritage, townscape, and visual receptors.
Archaeology	<ul style="list-style-type: none"> Construction activities, such as building foundations and infrastructure excavations, have the potential to physically impact archaeological remains of local to regional significance 	<p>Construction phase mitigation:</p> <ul style="list-style-type: none"> The implementation of the programme of archaeological work at the site will result in the preservation by record of archaeological deposits within the site. The implementation of a programme of public benefit and outreach will also provide public benefits that offset the impacts of the scheme. 	<ul style="list-style-type: none"> The final impact on archaeological remains shall be negligible.
Air Quality	<ul style="list-style-type: none"> Dust and particulate matter released as a result of construction activities have the potential to negatively affect 	<p>Good site practice and the following mitigation measures have been incorporated into a detailed Construction Environmental Management Plan which will be implemented for the development:</p>	<ul style="list-style-type: none"> The final impact of construction dust on nearby sensitive receptors will be negligible.

	<p>the health of nearby human receptors.</p> <ul style="list-style-type: none"> • Traffic generated by the development could cause an increase in pollution concentrations. 	<ul style="list-style-type: none"> • Displaying contact details and names for the person accountable for air quality and dust issues on site; • Recording all dust and air quality complaints and incidents; • Regular site inspections; • Avoiding the use of machinery and dust causing activities near the sensitive receptors; • Using dust screens or barriers; • Suppressing dust; • Minimising drop heights; • Avoiding bonfires and burning of waste materials; and • Monitoring in compliance with Dust Management Plan. 	<ul style="list-style-type: none"> • The operational development will also have a negligible impact on air quality.
<p>Noise and Vibration</p>	<p>There is potential for increases in noise and vibration to surrounding residential and commercial receptors.</p>	<p>Best practice measures have been incorporated into the Construction Environmental Management Plan to mitigate disturbance. These include:</p> <ul style="list-style-type: none"> • Using ‘silenced’ plant and equipment where possible; • Switching off engines when vehicles are not in use; • Fitting acoustic enclosures to suppress noisy equipment; • Operating plant at low speeds and incorporating automatic low speed idling; • Electrically driven equipment will be selected in preference; • All plant will be properly maintained; and 	<ul style="list-style-type: none"> • Given the proximity of the construction works to residential receptors, including existing and future residents of Ham Close, residents will experience significant noise levels. However, this will be temporary and for short periods.. • The noise effect of the residential dwellings, road traffic, and building services plan of the operational development will be negligible.

		<ul style="list-style-type: none"> All contractors will be made familiar with the guidance in BS 5228 (Parts 1 & 2). <p>The residential area is calculated to fall below the BS 8233 criteria with typical insulated double glazing and attenuated trickle ventilation.</p> <p>Fixed plant will be specified during the detailed design state. All plant will be specified such that the rating levels at the nearest residential receptors fall below the identified background sound levels.</p>	
<p>Ground Conditions and Contamination</p>	<ul style="list-style-type: none"> There is a potential risk to construction/site workers, controlled waters, air quality, landfill and surrounding site users, as a result of construction. There is a potential risk to future site users, controlled waters, land and soil quality and infrastructure (buildings, materials and services), as a result of operation. 	<p>Construction impacts shall be mitigated through:</p> <ul style="list-style-type: none"> Implementing the mitigation measures in Construction Phase Plan and Construction Environmental Management Plan on site; Using appropriate PPE/RPE, combined with good hygiene and housekeeping; Dust management suppression; Boundary monitoring; Stockpile monitoring; Storage of all fuels and raw/ waste materials in line with best practice and with all relevant environmental permits; Contingency action plans if contamination is discovered; and Maximising re-use of materials on site through appropriate assessment and development of Materials Management Plan. <p>Operational impacts shall be mitigated through:</p>	<p>Impacts to construction workers, surrounding site users, controlled waters, landfill, future site users and soil and land quality will all be negligible.</p>

		<ul style="list-style-type: none"> • Use of a reactive remediation strategy for any unexpected contamination to remove/treat/encapsulate during earthworks. • Placement of clean topsoil for soft cover areas. • Appropriate design of services and SUDs preventing formation of new pathways. • Appropriate design for all hardstanding areas, such as car parks, roads and private drives and including appropriate design and maintenance of interceptors. 	
Ecology	<ul style="list-style-type: none"> • The construction and operational phases of the development have the potential to impact several ecological receptors including badgers, bats, birds and hedgehogs. • 	<p>The following mitigation measures have been incorporated into the outline Construction Environmental Management Plan to protect habitats and species:</p> <ul style="list-style-type: none"> • All retained habitats to be suitably protected from construction activity disturbance by appropriate fencing. • The root protection zone around trees shall be fenced off prior to commencement of works to ensure that roots are not damaged. • Potential for spillages during construction will be minimised through effective management, including the implementation of a contingency plan, should an accident occur. • Any hazardous material used would be kept in dedicated stores, and storage tanks would have appropriate buildings. • Badger protection measures will be implemented across the construction site. 	<ul style="list-style-type: none"> • The proposed development will have an overall permanent positive impact for many ecological receptors and for local biodiversity. • The Biodiversity Net Gain assessment demonstrates that there will be over a 23% net gain in biodiversity value.

		<ul style="list-style-type: none"> • An updated bat scoping survey will be undertaken prior to commencement of works on Phase 2 and 3; • Artificial lighting will be minimised during construction; • The lighting installed will not create unnecessary light spill onto sensitive areas (e.g. Ham Village Green). • There will be no uncontrolled lighting and lighting will be switched off when not in use; • Landscaping proposals for the completed development included ecological enhancements such as, biodiverse living roofs, flower rich perennial planting, SuDS planting, wildflower grassland, green walls, integrated bird and bat boxes, stag beetle loggeries, and invertebrate habitat features; and • The clearance/demolition of the vegetation/buildings with nesting bird potential/confirmed nesting activity will be undertaken outside of nesting season or after a qualified ecologist has confirmed absence. 	
Socio-economic	<p>The construction and operational phases of the proposed development have the potential to effect:</p> <ul style="list-style-type: none"> • Employment provision. • Housing provision and affordability. • Local economy due to new resident spending. 	<p>Mitigation/enhancement includes:</p> <ul style="list-style-type: none"> • Additional local skills and employment opportunities are secured through the Section 106 Agreement to be provided to LBRuT residents during construction. • New and enhanced open space, play space and public realm improvements are proposed. • Financial contributions provided to LBRuT in the form of local Community Infrastructure Levy (CIL) 	<p>The predicted final impacts of the proposed development include:</p> <ul style="list-style-type: none"> • The provision of 32 full-time jobs each year of the construction period. • The provision of 23-57 full-time jobs in the operation phase.

	<ul style="list-style-type: none"> • Education capacity (early years, primary and secondary). • Healthcare impacts on GP surgeries and dentists. • Crime. • Open space provision. • Community facilities. 	<p>contributions for local primary schools, secondary schools, and community facilities.</p>	<ul style="list-style-type: none"> • There is an overall increase in 1-3 full-time jobs, compared with the existing site. • New residents will generate a £4 million increase in spending in the LBRuT economy each year. • Reduced capacity at local nurseries, primary and secondary schools, and primary healthcare. • Increased funding for local nurseries, primary and secondary schools and primary healthcare.
<p>Climate Change</p>	<p>Risks to the proposed development and its future users arising as a result of climate change include:</p> <ul style="list-style-type: none"> • Overheating in homes and the associated health impacts. • Soft landscaping failure and associated loss of services. • Water shortages for public use and landscaping. • Greenhouse gas emissions released from energy use during site operation. • Greenhouse gas emissions released from transport during site operation. 	<p>Mitigation for the identified risks includes:</p> <ul style="list-style-type: none"> • Overheating <ul style="list-style-type: none"> ○ Passive and active design measures, including natural and mechanical ventilation, and balconies and overhangs to create shading. • Soft landscaping failure <ul style="list-style-type: none"> ○ Use of resilient and biodiverse planting to maximise surface water storage and biodiversity. • Water shortages <ul style="list-style-type: none"> ○ Use of water efficient sanitaryware to meet a maximum water consumption rate of 105 litres per person per day. • Greenhouse gas emission 	<ul style="list-style-type: none"> • With the implemented design measures and mitigation, the overheating risk, soft landscaping failure and water shortage risk will be mitigated to a mostly negligible level. • Total operational phase energy emissions will be a significant improvement compared to the greenhouse gas energy emissions at the existing site. • Transport emissions shall be effectively mitigated.

		<ul style="list-style-type: none"> ○ Passive design measures including energy-efficient building fabric, insulation to all heat loss areas, double-glazed windows, low-energy lighting and efficient heating and ventilation systems. ○ Provision of an Air Source Heat Pump Network, capable of connecting to any future District Heat Network (should one become available). ○ Solar photovoltaics on suitable roof space. ● Transport <ul style="list-style-type: none"> ○ Implementation of a Travel Plan encouraging sustainable transport. ○ Provision of cycle storage. 	
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