3.0 CONSTRUCTION

INTRODUCTION

3.27 This Chapter addresses the key activities for enabling works, demolition and construction across the proposed development. The Chapter is not written to assess the impact associated with the technical topics that make up this ES, and as such does not follow the same Chapter structure. However, reference is made to any relevant technical and environmental considerations being given in specific assessments (Chapters 4.0-11.0) as appropriate.

3.28 Planning for enabling works, demolition and construction is broad at this stage and may be subject to modification during the detailed planning of these works. It is anticipated that further information and detail will be submitted pursuant to planning conditions.

3.29 The potential for cumulative demolition and construction impacts are considered in each Technical Chapter where relevant and summarised in Chapter 11.0: Cumulative Impacts.

3.30 A Construction Environmental Management Plan (CEMP) has been prepared by the applicant and is provided in Appendix 3.1. This will be updated as and when further construction details become available through the construction phases.

PROGRAMME AND PHASING

3.31 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, with a three phase build out anticipated at this stage working from the western end of the Site, followed by the east and then to the centre. Further details are provided below and in Appendix 3.1:

- 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, the community centre and Maker Labs facility. Phase 1 is anticipated to be concluded in October 2024.
- Phase 2 is expected to commence in October 2024 and include demolition of the buildings in the east of the Site and construction of Blocks M, N, O, T, U, V facing Ham Village Green, and the eastern side of the basement carpark. Phase 2 is due for completion in May 2027. All residents 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 basement car park. Phase 3 is due for completion in March 2030.

3.32 The phasing has been sensitively considered from the outset to ensure existing residents are only making one single move into their new home.

CONSTRUCTION ACTIVITIES

3.33 The following works are anticipated for each phase (where relevant):

- Site setup and demolition;
    - Hoarding erection
    - Formation of vehicular & pedestrian accesses
    - Site strip and reduce levels
    - Establishment of temporary services and basic welfare facilities
- Basement excavation and piling;
    - Formation of pile mat
    - Piling
- Sub-structure;
    - Pile caps
    - Drainage
    - Installation of utility / service distribution network
    - Ground floor slab formation
- Super-structure;
- Cladding;
    - Scaffold erection
    - Window installation
    - Brickwork
- Fit-out, testing and commissioning.

Site Establishment

Hoarding

3.34 External hoardings will be erected which will be clad with marine quality plywood which will be 2.4m minimum height decorated using good quality paint products and will be maintained at all times.

3.35 At each Site entry / exit point secure Site gates will be installed which will be manned by traffic marshals / security guards at all working times and as far as practicable will remain closed whilst not in use.

3.36 It is possible that certain portions of the surrounding pavement will be closed during the construction works and that the hoarding will therefore follow the kerb line in order to provide working room. The positioning of this hoarding will be agreed in writing with LBRuT and all relevant licences acquired prior to its installation. Pedestrians shall be redirected safely to alternative pedestrian routes.

3.37 It is also possible whilst working on the Site perimeter that it may be necessary to erect scaffolding for access to carry out the works, which may need to be based upon the pavements outside the Site boundary. Wherever this is required, the scaffolding will be erected in accordance with local highway authority requirements and the appropriate licence obtained.

Site Office and Welfare Facilities

3.38 Welfare and First Aid arrangements shall, as a minimum, be in accordance with the CDM Regulations (2015)[1] Approved Code of Practice and the Health and Safety (First Aid) Regulations Approved Code of Practice and Guidance (L74).

3.39 It is anticipated that the contractors will locate their site accommodation within the Site boundary, but outside the actual building footprints. Site welfare will be positioned to suit each phase which has been identified in the phasing and logistics plans in Appendix 3.1.

3.40 This is likely to be a 2-storey temporary sectional building. At the latter stages of the project the contractor will need to decant from this space to enable the public realm to be completed. This will require the relocation of welfare facilities to a reduced temporary facility in one of the residential blocks to manage the completion of the works.

Loading and Unloading

3.41 All plant and materials delivered to Site will be unloaded from approved loading bays agreed with LBRuT under the direction of the applicant's site management team. Likewise materials to be removed from Site will be loaded onto vehicles within the approved loading bays under the direction of the applicant's site management team.

Demolition

3.42 Once the existing properties are vacant, initial demolition surveys will be undertaken to determine the amount of any asbestos, types of material etc. in the building and to confirm the existing construction.

3.43 Initially, services disconnections to the fully decanted existing buildings will be carried out followed by the removal of any asbestos identified by demolition surveys in advance. Soft strip out will then continue on non-asbestos materials.

3.44 It is envisaged that buildings will be demolished using long reach mechanical plant incorporating breakers and crunchers working from inside the Site boundary.

3.45 Demolition on the road boundaries will principally be carried out by hand from the perimeter scaffolds which will allow for screening to control dust. Additionally, dust will be controlled using water mist sprays located on the long reach munching machines. Noise will be controlled and monitored throughout the demolition stages.

Excavation

3.46 The different phases of the development may require varied excavating and levelling for the formation. Most of the excavation will be carried out by large 360° excavators and shovels. Earthwork support will be provided to perimeter road boundaries where required.

Substructure

3.47 Following excavation, a piling mat will be formed across the Site for the construction of cast in situ piles using a Continuous Flight Auger (CFA) piling rig followed by the construction of pile caps, underground drainage and the basement slab.

HOURS OF WORK

3.48 The standard working hours for all works and ancillary operations which are audible at the Site boundary shall be as follows:

- Between 08:00 and 18:00 Monday to Friday.
- Between 08:00 and 13:00 on Saturday.

3.49 Relaxation / Flexibility to hours of operation as a result of Covid-19 may be requested. This will depend on the extent of any restrictions imposed at the time of construction.

3.50 No work may be carried out on Sundays and Bank Holidays, and no work will be undertaken out of hours without prior agreement with LBRuT. This can be secured by way of a planning condition.

3.51 There may be circumstances where the restriction on hours of work cannot be adhered to (such as crane erection or plant maintenance). The applicant will endeavour to minimise the frequency and duration of such works. However, where unavoidable, the applicant will be required to fully justify any proposed deviation from these operating periods, provide written justification to LBRuT giving at least 5 working days' notice (except in case of an emergency), and notify neighbours before works outside normal hours commence.

CONSTRUCTION TRAFFIC

Vehicle Routes

3.52 Site construction traffic will be routed where there are the fewest sensitive receptors ie fewest numbers of homes, schools etc. For Ham Close this means accessing from the A307 via Sandy Lane (see Appendix 3.1). A tight bend to the north of the A307 has been identified which is a very severe pinch point that will be avoided by construction traffic.

3.53 The proximity of the residential properties in Ashburnham Road and Woodville Road will create the potential impact of site vehicles on traffic flows to/from the Site and will also make it essential that no site unloading will be undertaken on the highway.

3.54 Because of these interfaces, it is planned that all materials deliveries and all waste removal from Site will be loaded and unloaded from within the Site.

3.55 Roads, footpaths and all accesses will be kept clear of debris and free of mud at all times by use of hand sweeping and road sweepers, if necessary.

3.56 Delivery vehicles will be required to use such delivery routes as are agreed with LBRuT and the contractor will be required to demonstrate compliance by their supply chain. The contractor will be actively discouraged from using minor roads in the vicinity of the Site and will likewise be required to demonstrate monitoring and compliance. Evidence of this monitoring will be requested and if necessary, separate monitoring via spot checks can take place.

Traffic Management

3.57 No vehicles will enter the Site from the west of Ashburnham or Woodville Road. There will be no loading from the highway. Where traffic needs to be segregated from passing traffic this will be achieved by the use of physical barriers.

3.58 Traffic marshals will be in place to safely manage unloading where the Site interfaces with the public.

3.59 With an average of approximately 25 construction vehicles movements anticipated per day, there will be minimal daily Heavy Good Vehicles (HGV) movement to and from Site outside normal working hours except by agreement with LBRuT in exceptional circumstances, such as weekend working for crane erection.

3.60 Generally, HGV access and egress will be timed to be outside peak congestion hours wherever possible in the interests of highway safety.

3.61 There will be no loading / unloading of vehicles carried out on the public highways, unless prior approval has been obtained from LBRuT and suitable traffic management measures put in place.

Workforce

3.62 At this stage it is anticipated that the future construction site would not accommodate parking for general construction staff with travel expected to be undertaken using local public transport facilities. To support this, it is anticipated that cycle parking will be accommodated within the Site, likely within staff welfare areas.

3.63 To encourage sustainable travel, a summary of local public transport options is to be provided to construction staff via induction training as appropriate in the form of a Staff Travel Plan. This requirement will be relayed to management of contractors in order that they can suitably arrange for distribution of materials to staff.

Pedestrian and Cyclist Safety Measures

3.64 Maintaining pedestrian and cyclist safety throughout the construction programme is of great importance. Traffic marshals and banksmen will be present throughout construction hours to ensure pedestrian and cyclist safety and the safe arrival and departure of vehicles, and to minimise conflict and potential disruption for pedestrians, cyclists and other road users.

3.65 Warning signage will be provided in the vicinity of the Site to ensure that vehicles, pedestrians and cyclists are aware that construction activity is taking place. The hoarding of the Site will help to ensure that unauthorised access to the Site is not possible.

CONSTRUCTION ENVIRONMENTAL MANAGEMENT

Demolition and Construction Impacts

3.66 Table 3.1 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 are discussed in detail within the relevant Technical Chapters of this ES and are incorporated into the CEMP.

Table 3.1 Demolition and Construction Impacts

Potential Impact	Mitigation	Chapter/Appendix Reference for Further Detail
Construction Traffic	Introduction of secure Site hoarding and pedestrian routing plans where necessary to ensure that conflict between pedestrians / cyclists and construction traffic are limited and controlled. Construction traffic will be managed in accordance with measures set out in the CEMP.	Appendix 3.1 CEMP
Generation of dust during construction	A range of measures incorporated into a dust management plan (DMP) and CEMP. These include (but are not limited to):	Chapter 5.0: Air Quality

Potential Impact	Mitigation	Chapter/Appendix Reference for Further Detail
	• No idling vehicles; • Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable; • Impose and signpost a maximum speed limit of 15mph on surfaced roads and work areas and 10mph on un-surfaced haul roads and work areas; • Dust suppression; • Storage of materials to avoid dust creation; and • Regular inspections.	
Noise from vehicles and plant	Best practice measures incorporated into the CEMP. These include (but are not limited to): • 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.	Chapter 6.0: Noise
Destruction of below ground archaeology	Implementation of geo-archaeological and archaeological investigation work (secured by condition).	Chapter 4.0: Archaeology
Mobilisation of contamination	Implement CEMP and remediation plan, including removal of any contamination.	Chapter 7.0: Ground Conditions and Contamination
Impacts on general onsite and offsite ecological receptors	Recommendations incorporated into CEMP: • Badger protection measures • Updated bat roosting assessment prior to Phases 2 and 3 • Sensitive clearance for birds and hedgehogs	Chapter 8.0: Ecology Appendix 3.1 CEMP

Safety and Environmental Standards

3.67 All personnel will be required to wear safety helmets whilst on-site, and safety instructions will be strictly adhered to. All precautions will be taken to ensure the health and safety of working personnel, visitors and the general public.

SITE LIAISON

3.68 The applicant's Project Manager and Resident Liaison Officer will be responsible for ensuring appropriate communication and to ensure the distribution of information to the local community (including existing and future residents of Ham Close) and the LBRuT relating to relevant aspects of construction and to ensure appropriate arrangements should be made for monitoring and responding to complaints relating to demolition and construction.

3.69 The Site Liaison Officer will be required to have a broad knowledge to the background of the scheme and a thorough appreciation of the works that are being undertaken. Additionally, the Site Liaison Officer will have an understanding of the role of the Employer. The primary duties of the Site Liaison Officer will be as follows:

- To answer general questions or provide general information only about the scheme to members of the public.
- To proactively liaise with the residents or people that will be directly affected by the works.
- Recording problems, complaints and/or comments made by residents and working with the Supervisor and/or Project Manager to resolve or deal with the matter.
- To supply information relating to progress to date, forthcoming works and any other relevant information or photographs to the Employer for incorporation into reports to residents and to assist in delivering the reports.

Reporting Procedure

3.70 The Project Manager or the Site Liaison Officer will advise LBRuT of any incidents of non-compliance with the CEMP. In the event of working practices being deemed as non-compliant or requiring improvement either by LBRUT or the Health and Safety Executive, remedial action must be taken immediately.

3.71 The contractor will maintain an on site system for recording any incidents and action taken.

3.72 Any reports forwarded by LBRuT, the Police or other agencies will be dealt with by the contractors, as soon as practicable. The contractor will record the report, investigate the incident fully and will undertake a suitable corrective measure and thereafter monitor and ensure suitable action has been taken, where appropriate remedial action will be agreed with LBRuT.

Neighbourhood Liaison

3.73 At least 14 days prior to commencement of the construction works, the neighbouring properties will be contacted by the Site Liaison Officer to explain the nature of activities to be undertaken.

3.74 The Contractor will maintain a full- time Site Liaison Officer contact for the public and LBRuT in order to obtain information, register a complaint or request action. A contact telephone number and / or e-mail address will be provided.

3.75 During the works, communication with the neighbours will be maintained via notice boards on the hoardings (displaying contact details for key personnel) and neighbours will also be specifically informed about any abnormal work or emergency road works, road closures proposed and a monthly newsletter will be produced by the contractor.

SUSTAINABILITY

3.76 To further reduce carbon emissions over the lifecycle of the building, low embodied carbon materials will be used as far as practically possible, whilst also focusing on design practices to reduce waste production. Material efficiency will be incorporated into the design at all stages enabling the most efficient use of materials over the life cycle of the building and its components. Preference will be given to the use of local materials and suppliers, where viable, to reduce transport distances and support the local economy. By embracing the Circular Economy principles of reduce, reuse and recycle the development will ultimately lower materials usage and lower wastage levels.

3.77 Insulating materials will be specified to maximise thermal performance whilst still paying attention to the environmental impact of the materials used. The use of recycled products will be pursued wherever feasible, and the use of other low embodied energy products will be further investigated.

Energy Usage

3.78 All relevant contractors will be required to investigate opportunities to minimise and reduce the use of energy. Measures to minimise energy usage will include:

- Use of alternative fuels where practicable to do so;
- Selection and specification of energy efficient plant and equipment; and
- Implementation of staff-based initiatives such as turning off plant and equipment when not in use both on-site and within site offices; encouraging a paper-reduced office and encouraging double-sided printing and photocopying.

Waste

3.79 Contractors will be required to minimise waste at source and maximise recycling and re-use of site clearance and construction materials wherever possible and practicable.

3.80 All contractors will be required to investigate opportunities to minimise and reduce waste generation by:

- Minimising materials
    - Reducing the quantity of materials used in the construction process. Floor plates will be rationalised as much as possible to maximise material efficiency.
    - Repetitive design has been utilised. Seven pairs of blocks share the same design and all unit types have been rationalised and replicated.
    - Building form factor will be optimised where possible to increase efficiency and thus reduce the comparative thickness of insulation and overall area of facade required.
    - Basement designed so part of the temporary works structure can be retained and used to provide permanent support to the completed structure.
    - Community centre fit-out will minimise use of speculative finishes. Massing optimisation studies have been used to reduce material quantum.
- Pre-fabrication
    - Standard bathroom and en-suite types across the scheme minimising variation.
    - Stair master, balconies, utility cupboards, bathroom pods etc. shall be considered from a prefabrication perspective.
- Minimising plant
    - The development has been designed with a communal heat network which reduces the amount of plant equipment as apartments are served via a communal system.
    - Overheating assessment confirms that there is no need for cooling plant in all areas, as some will rely on natural ventilation
    - All apartment blocks feature a stacked design to minimise pipework and kitchens and bathrooms will be coordinated to minimise pipework where floorplates vary.
- Agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme;
- Implementation of a *'just-in-time'* material delivery system to avoid materials being stockpiled;

- Attention to material quantity requirements to avoid over-ordering and generation of waste materials;
- Re-use of materials wherever feasible, e.g. re-use of excavated soil for landscaping. Concrete will be taken off site for crushing and re-use, if possible. The Government has set broad targets for the use of reclaimed aggregate, and in keeping with best practice, contractors will be required to maximise the proportion of materials recycled;
- Segregation of waste at source where practical;
- Re-use and recycling of materials off-site where re-use on-site is not practical (e.g. through use of an off-site waste segregation facility and re-sale for direct re-use or re-processing);
- Skips will be colour coded and signposted to reduce risk of cross contamination and covered to prevent dust and debris blowing around the Site, these will be cleared on a regular basis; and,
- Burning of wastes or unwanted materials will not be permitted on-site.

3.81 Waste will be stored in covered skips or muck away trucks, and will be sorted off-site by an external specialist company.

3.82 All waste material that cannot be reused or recycled, including contaminated soils and materials, will be disposed of in accordance with legislation and best practice. All waste materials will be collected and stored in suitable receptacles before they are taken offsite. Waste materials will not be allowed to accumulate on-site.

REFERENCES

1 The Construction (Design and Management) Regulations 2015