

Growing Baldock

Outline Construction Environmental Management Plan



October 2025

Urban&Civic



Growing Baldock

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1 Introduction

1.1 Introduction

- 1.1.1 This Outline Construction Environmental Management Plan (OCEMP) is submitted in support of the Outline Planning Application (OPA) for the 'Growing Baldock' Development (the 'Scheme').
- 1.1.2 A series of CEMPs, one for each phase of the development (BA1, BA3 and BA10), will be prepared in accordance with this OCEMP and will likely be secured by a planning condition. The content within these CEMPs will build upon the environmental management and mitigation measures which have been prescribed within this OCEMP for the construction of each specific phase.
- 1.1.3 A further set of Detailed CEMPs will be produced in support of the relevant Reserved Matters (RMAs) and will be submitted for approval by North Herts Council (NHC) in advance of starting the relevant phase of the construction works. The RMA-specific detailed CEMPs will capture the following:
- Any outstanding detailed construction information which is yet to be determined subject to appointment of contractors and completion of the detailed design process,
 - Complementary suite of environmental management plans (where applicable),
 - Final details of environmental measures, their form, and application.
- These detailed RMA CEMPs will likely be secured by a planning condition.
- 1.1.4 This OCEMP identifies the allocated measures, responsibilities, procedures, and requirements for construction site environmental management and is informed by the EIA process and the various assessments contained within the Environmental Statement (ES) produced for the Project. Ultimately, the future phase specific and detailed RMA CEMPs will include relevant site-specific management plans (Section 2.27), operating practices, arrangements for monitoring and evidence of liaison with local authorities and stakeholders.

1.2 The Scheme Boundary

- 1.2.1 The site boundary is shown on the Parameter Plan [ref: UAC092/002 Rev Q] and described in the Environmental Statement Chapter 2: Proposed Development.
- 1.2.2 The Scheme Boundary covers an area of approximately 220 hectares (ha) in size and is located to the north and east of the historic market town of Baldock (population c.10,000), within the administrative area of North Hertfordshire (Grid Reference [TL 25156 35043]). The Scheme comprises the following sites:
- Site BA1 (Land East Of North Road And North Of The Railway Line);
 - Site BA10 (Land between The Railway Line and Royston Road);
 - Site BA3 (Land west of the A505);
 - Site BA2 (south of Clothall Road);
 - Walls Field;
 - Urban Open Land west of the A505, and
 - Land west of North Road, Baldock, Hertfordshire

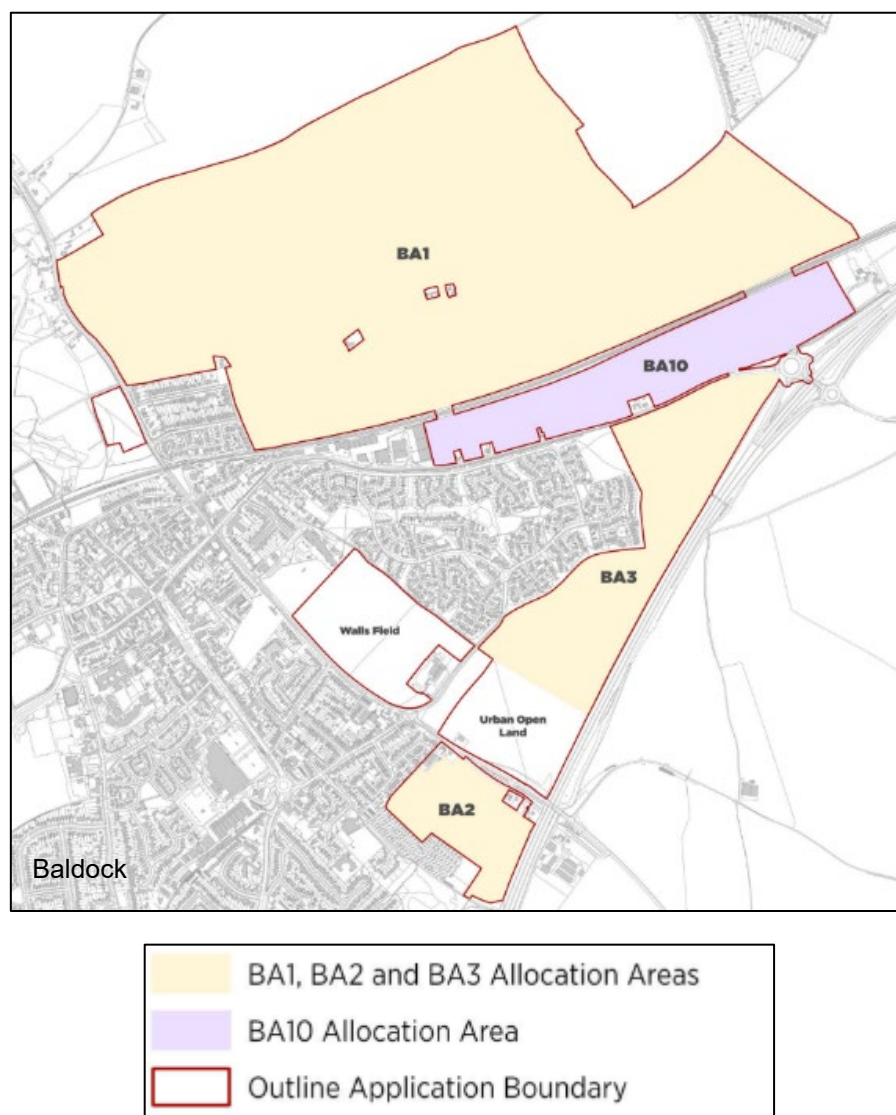


Figure 1: Local Plan Allocations within the OPA Boundary

1.3 The Scheme

- 1.3.1 Outline planning application with all matters reserved except for means of highway access into the development from the A505/Royston Road, North Road and Clothall Road, for up to 3,200 homes, up to 16ha of employment, waste and leisure infrastructure, a mixed use local centre, up to 1 secondary school, up to 2 x primary schools, up to 1 SEND school, health hub, green infrastructure (including parks, formal sports provision, play, habitat areas, informal open space and structural planting), internal street network, access junctions and railway crossing, public transport infrastructure, pedestrian/cycle network (including PRow diversions, active travel routes, mobility hubs and crossing of the railway), utilities and drainage infrastructure (including diversions of existing and provision of new infrastructure, pumping stations, sustainable drainage, primary substations, rising main/strategic sewer and renewable energy infrastructure), ground remodeling/earthworks and any necessary demolitions.

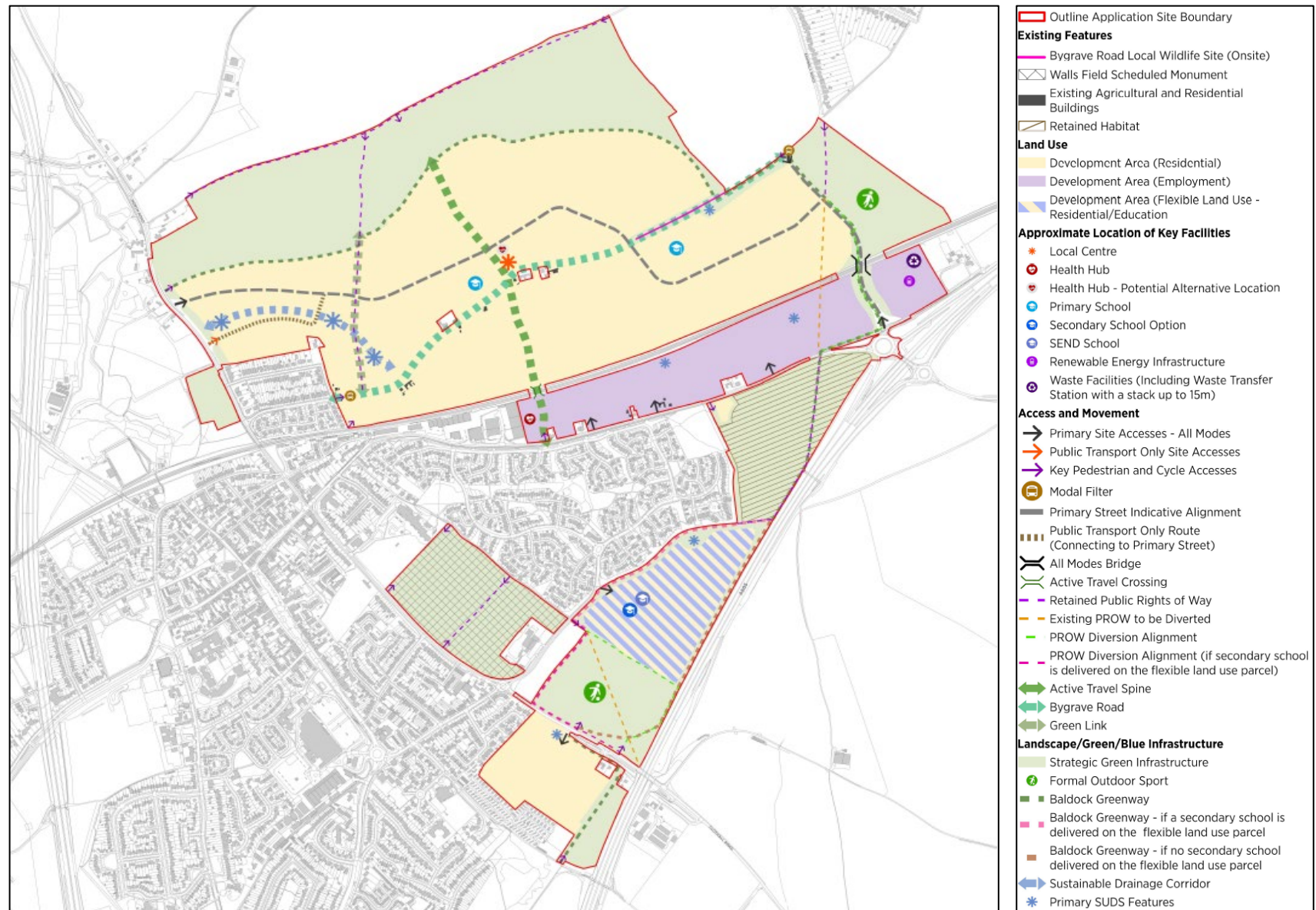


Figure 2: Growing Baldock Parameter Plan

2 Construction Environmental Management

2.1 Introduction

- 2.1.1 The following section establishes the Scheme's construction and general site arrangements. It also outlines the key responsible roles on site and gives insight into the fundamental environmental management tasks for each topic covered by the ES for the Project.

2.2 Roles and Responsibilities

- 2.2.1 Key roles and responsibilities during the construction phase in managing environmental impacts will likely include but are not limited to:

- Principal Contractor – A person or company appointed to manage the construction project as a whole including the contractors. For this project, the Principal Contractor is Urban & Civic.
- Contractor(s) – A person or firm that undertakes a contract to provide materials or labour to facilitate the completion of a project's construction.
- Site Manager – Overall responsibility for activity on-site and will typically be based on-site full time.
- Construction Project Manager - Overall responsibility for ensuring all planning conditions/requirements are met/adhered to. The construction Project Manager will also ensure that the phase specific detailed CEMPs are utilised correctly and that all site workers are briefed on how and when it should be used. Lastly, the construction Project Manager will make certain that all relevant environmental legal requirements are abided by and will ensure that construction tasks/activities are appropriately resourced, managed, reviewed, and reported.
- Environmental Manager - Responsible for the overall management of environmental aspects on site, ensuring environmental legislation and best practices are complied with, and environmental mitigation and monitoring measures identified within the Environmental Statement and the CEMPs (including all associated environmental subject-specific management plans) are implemented/adhered to. The Environmental Manager will oversee environmental monitoring on-site, conduct regular environmental site inspections, and will liaise with relevant environmental bodies, regulators and other third parties as appropriate. The Environmental Manager will also function as the Flood Warden on site and will be responsible to be prepared for, and manage, the response to flood incidents.
- Archaeological Clerk of Works (ACoW) - Responsible for advising the client on mitigation of the impacts of the development on the archaeological resource. This might include avoidance, micro-siting, design alternatives or preservation through excavation and recording. ACoW's will also be required to liaise with all relevant bodies and individuals, including the developer, design teams, site contractors, Local Planning Authorities and stakeholders as required. Other duties include advising on fencing off of known sites of archaeological importance, implementing and overseeing unexpected finds procedures, inputting to site inductions, providing toolbox talks to contractors, co-ordinating archaeological staff carrying out monitoring and excavations, preparing method statements and producing regular reports on progress to the client and for planning authorities.
- Ecological Clerk of Works (ECoW) - Manage and advise on protecting valued biodiversity features on-site during construction. They will provide practical, site-

specific, and proportionate assistance on how their clients and contractors can achieve compliance with ecological legislation. They will help to avoid unexpected costs, delays to project timetables, or adverse publicity that may have future negative commercial implications; and ultimately risk of enforcement action and/or potential prosecution. The ECoW will also manage ecological operatives engaged in ecological mitigation activities – such as undertaking ecological watching briefs and translocation of protected species.

- **Named Ecologist** - A professional ecologist who has satisfied Natural England that they have the relevant skills, knowledge, and experience of the species concerned and is responsible for undertaking and/or overseeing the work undertaken in respect of the licensed species. The Named Ecologist has a responsibility for ensuring that the licence is complied with during the operation of the Project. An Assistant to the Named Ecologist may be appointed.
- **Accredited Agent** - An 'Accredited Agent' is a suitable trained and experienced person who is able to conduct work under a licence without the personal supervision of the Named Ecologist. Any Accredited Agent must be appointed by the Licensee and be in possession of a letter signed by the Licensee confirming their appointment. Agents shall carry a copy of the said letter when acting under the licence and shall produce it to any police or Natural England officer on request.
- **Health and Safety Manager** – Responsible for the monitoring and controlling of health and safety compliance and related rules and regulations on-site.
- **Community Liaison Officer** - A Community Liaison Group will be set up in accordance prior to construction and will continue through until completion of the Scheme as a formal forum for local issues to be raised. A Community Liaison Officer will be appointed to lead discussions with local communities and also function as the primary point of contact should there be any queries or complaints.

2.2.2 Contact information for the above personnel will be provided within the table overleaf as part of the detailed CEMPs.

Table 1 Contact Information

Name	Role/Responsibility	Telephone Number	Email Address
	Site Manager		
	Construction PM		
	Environmental Manager		
	Archaeological Clerk of Works		
	Ecological Clerk of Works		
	Accredited Agent		
	Named Ecologist		
	Health and Safety Manager		
	Community Liaison Officer		

- 2.2.3 Table 2.1 above will be updated as part of the detailed CEMPs and will be kept up to date throughout the construction phase of the project.
- 2.2.4 The detailed CEMPs will set out all roles, responsibilities and actions required in respect of implementation of the measures described in this OCEMP, including:
- An organogram showing team roles, names, contact details and responsibilities;
 - Training requirements for relevant personnel on environmental topics;
 - Information on-site briefings and toolbox talks that will be used to equip relevant staff with the necessary level of knowledge to follow environmental control procedures;
 - Measures to advise employees of changing circumstances as work progresses;
 - Communication methods;
 - Document control;
 - Monitoring, inspections, and audits of site operations; and
 - Environmental emergency procedures.
- 2.2.5 The Construction Project Manager and Environmental Manager have responsibility for ensuring compliance with the OCEMP and subsequent detailed CEMPs during the construction phase.

2.3 Construction Programme

- 2.3.1 Currently, it is predicted that the first homes will be completed in 2028. An indicative high-level programme for each allocated site is as follows:
- 2.3.2 Site BA1:
- 2,700 homes total. First homes completed in 2029.
 - 100 homes on average per year for the first three years.
 - Circa 200 homes completed on average thereafter until the remaining 2,400 homes are built.
 - Development will commence in the west and progress eastwards.
- 2.3.3 Site BA2:
- Circa 200 homes total. First units completed in 2028.
 - 50 homes on average per year.
- 2.3.4 Site BA3:
- Decision required later in development programme by Education Review Group as to whether the land use mix in BA3 will include a secondary school. This will impact number of residential homes built and when they can be built.
 - Option 1 – large secondary school = 0 homes
 - Option 2 - No secondary school = c. 250 homes
 - Option 3 – small secondary school = c.100 homes
- 2.3.5 Site BA10:
- The earliest construction is due to commence is in 2028.
 - It is anticipated that half of Site BA10 will be delivered by 2033 and that the remaining half will be delivered in the following years.

2.4 Site Compound

- 2.4.1 The Site compound(s) for the construction works will be located within the development site.
- 2.4.2 The compound will be large enough to cater for the storage of plant, materials, and welfare facilities.
- 2.4.3 The Contractor shall agree locations for the compound prior to commencing on site. It is expected that each site area (e.g., BA1, BA2, BA3 and BA10) will house its own individual site compound.

2.5 Site Security

- 2.5.1 Site security during construction will be managed by the appointed contractor(s), with the wider perimeter managed by the Principal Contractor. The site security fencing will remain in place throughout the duration of the construction period. Any storage of materials will be kept secure to prevent theft or vandalism. A safe system for accessing the materials storage areas will be implemented by the contractor(s).
- 2.5.2 There will be designated security staff during construction who will manage the Site boundary, entrance/exit to and from site and patrol the perimeter.

2.6 Construction Operation Hours

- 2.6.1 It is expected that construction activities will be carried out Monday to Friday 08:00-18:00 and between 08:00 and 13:00 on Saturdays . Any works required to be undertaken outside of these working hours are subject to agreement with the Local Planning Authority (LPA).
- 2.6.2 It is anticipated that construction traffic movements will take place between 09:30-16:30 on weekdays and between 08:00-13:00 on Saturdays.
- 2.6.3 These provisions will be set out in the Construction Traffic Management Plan (CTMP) which will be developed in future alongside the detailed Construction Environmental Management Plans (CEMPs).

2.7 Traffic Management

- 2.7.1 During construction, the appointed contractor(s) will ensure that the impacts from construction traffic on the local community (including local residents and businesses and users of the surrounding transport network) are minimised, where reasonably practicable, by implementing the measures set out in the Construction Traffic Management Plan (CTMP) which will be developed in future alongside the detailed Construction Environmental Management Plans (CEMPs).
- 2.7.2 Should there be other schemes or developments built in the nearby area, it is possible that this could lead to combined congestion of public highways that share the same locality and thus giving rise to cumulative traffic and transport effects. If cumulative effects of this nature are identified, it will be reported within the detailed Construction Environmental Management Plans (CEMPs).

2.8 Construction Vehicle Access

- 2.8.1 Unless materials are being transported from local suppliers, construction vehicle journeys would be restricted, unless otherwise advised, to the strategic and main road networks, which are best suited to this type of heavy traffic. The use of strategic routes is less likely to create congestion and will help minimise the impact on local air quality.

- 2.8.2 All construction vehicles accessing the plots would be managed by banksmen. The banksmen would direct the movement of construction vehicles to and from the site, maintain pedestrian safety, minimise congestion and assist in preventing incidents on and off-site.
- 2.8.3 The proposed outline construction vehicle routing plan is presented in Figure 2 below.

2.9 Construction Haul Routes

- 2.9.1 Construction Haul Routes will be set out to allow movement of vehicles and plant throughout the sites. The precise arrangement of these haul roads are currently being refined. However, an indicative markup drawing is provided below. This will be updated where appropriate and included within the detailed CEMPs for the Project.



Figure 2: Indicative sketch of Haul Routes for the Site (BA1 parcel).

2.10 Off-Site Delivery Routes

- 2.10.1 The CTMP will provide details of the designated routes for HGV movements and worker car movements. It also details any measures designed to reduce travel during peak hours on the local road network. The CTMP will be developed in future alongside the detailed Construction Environmental Management Plans (CEMPs).

2.11 Construction Traffic Volumes

- 2.11.1 A projection of anticipated construction vehicle movements has been prepared and is presented within the Transport Assessment appended to Chapter 4 of the ES for the Growing Baldock project.
- 2.11.2 The peak of construction-related traffic is expected to occur in 2033, when plots BA1 and BA10 are scheduled to be under construction. During this time, approximately 80 construction vehicle arrivals would be expected over the course of an average weekday. Of these, 72 vehicle arrivals (c.89%) would take the form of HGVs.

2.12 Highway Safety, Parking and Considerate Behaviour

- 2.12.1 The designated construction compound will include parking facilities for site workers and visitors. It is expected that this will constitute a temporary hardstanding material thus providing a safe surface for parked vehicles and pedestrians.
- 2.12.2 All construction deliveries will take place from within pre-defined areas. Special arrangements for abnormal loads, cranes and other heavy lifting equipment deliveries will be made separately by the appointed contractor with HCC, if required. Within any subsequent Outline Construction Logistics Plans (CLPs) submitted as part of future RMAs, it will be confirmed that:
- A Detailed CLP will be prepared once a principal contractor is appointed and this document would contain full contact details for the appointed contractor.
 - While traffic management will be required at the construction site entrances and exits, all operations (compound/ site accommodation and amenities) would be located so that it does not impact the safety of the public highway.
 - Detailed road safety and traffic management proposals will be prepared to support the construction project, with input from the appointed contractor.
 - No heavy goods vehicle traffic will be permitted to unnecessarily route to or from minor roads, with all movements to route via the SRN, where possible.
 - The developer and their appointed contractor are committed to ensuring that all suppliers comply with safety and environmental standards and programmes. It will be a requirement that all vehicle and driver management practices comply with the Fleet Operators Recognition Scheme (FORS) and Construction Logistics and Community Safety (CLOCS). Compliance with FORS Bronze accreditation, as a minimum, will be requested of all sub-contractors and suppliers intended to be used.
 - It is envisaged that HCC would seek to monitor the construction activities so that commitments made in a Detailed CLP (or alternative planning document) are adhered to.

2.13 Public Rights of Way (PRoW) Management

- 2.13.1 There are several PRoWs which currently exist within the Site. Temporary disruption or severance to these routes is highly likely during the construction phase of the project and thus management of these public amenities is required. This could include re-routing of PRoWs (temporary or permanent) or programmed closures in order to facilitate the construction works and completion of the Project. Specific details of management of these PRoWs will be determined and included within the detailed CEMPs.

2.14 Control of Noise and Vibration

- 2.14.1 Noise thresholds have been identified for nearby noise sensitive receptors during construction and are presented in Chapter 5 of the Environmental Statement: Noise and Vibration and Table E2 (**Appendix E**).
- 2.14.2 It is expected that construction works will be undertaken in accordance with the best practicable means (as defined in Section 72 of the Control of Pollution Act 1974), to minimise noise and vibration effects. Noise control measures will be consistent with the recommendations of the current version of BS 5228 'Code of Practice for Noise and Vibration Control on Construction and Open Sites' – 'Part 1: Noise' and 'Part 2: Vibration' (BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014). BS5228-2 indicates that mitigation might include the use of alternative methods, removal of obstructions, provision of cut-off trenches, reduction of energy input per blow, reduction of resistance to penetration, etc. As the construction programme and methodologies become more defined, earthworks and construction vibration will be reviewed and a detailed strategy for control will be devised and implemented. These mitigation strategies will be presented in the Noise and Vibration section of the detailed CEMPs.
- 2.14.3 Construction works will be restricted to daytime hours, typically between 0800- and 1800-hrs Monday to Friday and 0800 to 1300hrs Saturdays, with no works permitted on Sundays or Bank Holidays.
- 2.14.4 Earthworks and construction activities may need to be carried out during night-time hour. For instance, the construction of the bridge crossing or the railway underpass may be programmed during night-time hours to fulfill an expediated programme and thus limit railway closure. As such, the local authority may include a planning condition that requests advance notice and details of any night working to be provided.
- 2.14.5 In accordance with Section 61 of the Control of Pollution Act 1974, should significant adverse impacts be identified within the baseline and detailed assessments for sound, noise and vibration, a Section 61 consent may be applied for prior to commencement of works.

2.15 Control of Air Quality (including mud and dust)

- 2.15.1 The Contractor shall ensure that adequate provision is made to damp down areas where activities are likely to create dust. Measures shall include spraying by pressure hoses to suppress dust and provision of bowers and suction road sweepers where appropriate.
- 2.15.2 Plant shall be sited and screened where necessary to minimise dust emissions.
- 2.15.3 All stockpiles of demolition or excavations shall be covered to prevent generation of dust.
- 2.15.4 The Contractor shall take all necessary measures to prevent spillage onto public roads. The Contractor shall provide a wheel washing equipment or other methods as approved by the Employers Representative for all plant leaving the site area. Where mud or site material is carried out on to the public pavement the Contractor shall take all necessary steps to ensure the roads are cleaned immediately.

- 2.15.5 The Contractor shall clean the public gullies in the vicinity of the site before the works commence and at regular intervals during the works to ensure there is no blockages.
- 2.15.6 The Contractor shall also undertake to replace any road markings in the vicinity of the site as and when the need arises.
- 2.15.7 The Contractor will agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Baseline monitoring will be undertaken at least three months before work commences on site or, if it a large site, before work on a phase commences. A shorter monitoring period or concurrent upwind and downwind monitoring may be agreed by the local authority.
- 2.15.8 Air quality mitigation is detailed within Chapter 6 of the ES. A summary of specific construction related mitigation for air quality is as follows:
- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
 - Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
 - Display the head or regional office contact information
 - Records of all dust and air quality complaints or exceptional incidents will be kept within a complaints log. This log will identify cause(s) and detail appropriate measures taken to reduce emissions in a timely manner. The complaints log will be provided to the local authority if requested.
 - The Principal Contractor will carefully plan the site layout such that machinery and dust-causing activities are located away from receptors, as far as is possible. Screening will be utilised intelligently where possible – e.g. locating site offices between potentially dusty activities and the receptors.
 - Solid screens or barriers should be erected around the site boundary.
 - Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extended period.
 - Avoid site runoff of water or mud.
 - Keep site fencing, barriers and scaffolding clean.
 - Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
 - Depending on the duration that stockpiles will be present and their size - cover, seed, fence, or water to prevent wind whipping.
 - Ensure all vehicles switch off engines when stationary – 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 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
 - Ensure that suitable dust suppression techniques (e.g., water sprays or local extraction) are utilised for dust-generating activities. These might be cutting, grinding, sawing, demolition etc.

- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible.
- Use enclosed chutes, conveyors, and covered skips, where practicable.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.

- Bag and remove any biological debris or damp down such material before demolition.
- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as soon as practicable any material tracked out of the site. This may require the sweeper being continuously in use.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as practicable.
- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from receptors where possible.

2.15.9 All of the above will be covered extensively within the detailed Dust Management Plan (DMP) and the Construction Traffic Management Plan (CTMP). The DMP and the CTMP will be developed in future alongside the detailed Construction Environmental Management Plans (CEMPs).

2.16 Management of Landscape and Visual Effects

2.16.1 Landscape and visual impacts have been assessed within Chapter 7 of the ES. Specific mitigation measures associated with the construction phase are presented within Table E4 **Appendix E**. From the EIA assessment the following high-level requirements are as follows:

- It is assumed that mitigation measures, including all 'soft' landscape works (such as topsoiling, planting and seeding), would be implemented during or towards the end of construction in each phase, with the potential for early establishment in select locations providing limited mitigation for the construction period.
- Existing tree and scrub / shrub vegetation currently serving as a screen to adjacent landscape and visual receptors, but to be removed as part of the Proposed Development, would be retained within the construction site for as long as possible to minimise the impacts from the works;
- Existing tree and scrub / shrub vegetation to be retained as part of the Proposed Development (as indicated within the Arboricultural Impact Assessment) would be protected in accordance with BS5837:2012.

2.17 Management of Built Heritage and Archaeology

2.17.1 Built Heritage impacts have been assessed within Chapter 8 of the ES. No adverse impacts were identified as part of the EIA process and therefore no specific mitigation measures or monitoring requirements associated with the construction phase are proposed (Table E5, **Appendix E**).

2.17.2 Archaeological impacts have been assessed within Chapter 9 of the ES. Specific mitigation measures associated with the construction phase are presented within Table E6, **Appendix E**. From the EIA assessment the following high-level requirements are as follows:

- Archaeological excavation and recording; and preservation in-situ (at Walls Field)
- areas of significant buried archaeological remains, which may be impacted by the development, will be proposed for excavation and recording to ensure that they are appropriately managed prior to and/or during construction. Identification of these areas for mitigation would be undertaken by Hertfordshire County Council Historic Environmental Advisory Service (HCC HEAS) and detailed within a Written Scheme of Investigation, submitted to, and approved by them. Consultation with the HCC HEAS has been sought to discuss these potential areas.
- Industry standard good practice for archaeological mitigation for this site would be considered open area excavation, including presentation of analysis results within a publication and the physical archive being deposited with a local museum. This option involves machine stripping of topsoil/subsoil to the archaeological horizon. Features are excavated by hand to a percentage agreed with the HCC HEAS.
- The archaeological mitigation (open area excavation) works would be timetabled to take place following approval of the planning application and prior to construction works commencing. It is anticipated that a phased approach will be taken to the construction of the development, commencing in area BA2, before progressing west to east across BA1 and BA10, and finishing in BA3. A phased approach to excavation may be undertaken to reflect this, where areas of archaeology are cleared to allow plots to be built.
- Indirect impacts on designated heritage assets during the construction phase (mainly considered to be visual and auditory), will be mitigated through use of the best available techniques (e.g., suitable machinery and confined operational times).

- The designated scheduled monument of the Romano-British small town and Late Iron Age settlement at Baldock (NHLE 1016305) will be removed from agricultural cultivation and will become an area of informal open space managed in accordance with a Historic Environment Management Plan. This will remove the slow rate of adverse change that is currently affecting the preservation of the archaeological remains within the scheduled area from their slow erosion by ploughing.

2.18 Management of Hydrology and Flooding

- 2.18.1 Hydrology and flooding impacts have been assessed within Chapter 10 of the ES. Specific mitigation measures associated with the construction phase are presented within Table E7, **Appendix E**. From the EIA assessment the following high-level requirements are as follows:
- 2.18.2 During the construction phase of the project, flood risks to and from the proposed development will be managed and mitigated through the implementation of a suitable temporary drainage strategy. This will need to be developed by the contractor undertaking the works and will manage surface water quality and runoff volumes within the site. This will ensure that flood risk does not increase during the construction phase both within the Site and to downstream receptors.
- 2.18.3 Surface water and groundwater (including water quality) will be managed on site during the construction phase in line with current best practice (e.g., CIRIA guidance documentation) and British standards. Specific mitigation measures identified within the Detailed CEMPs are likely to include silt traps, temporary drainage systems to manage overland flow, and the storage of fuels and chemicals in impermeable and bunded enclosures.
- 2.18.4 During the construction phase of the project, a temporary drainage strategy will need to be produced by the contractor undertaking the works, in order to manage surface water quality and runoff volumes within the Site. This approach will ensure that flood risk does not increase during the construction phase both within the Site and to downstream receptors.
- 2.18.5 This surface water management strategy will form part of the detailed Construction Environmental Management Plans (CEMPs) produced for each project phase. These can be controlled by planning condition.
- 2.18.6 Emergency action plans will be prepared and kept on site for implementation in the event of accidental spillage of hazardous or dangerous fuels/chemicals.

2.19 Management of Ecology and Habitats

- 2.19.1 Ecology impacts have been assessed within Chapter 11 of the ES. Specific mitigation measures associated with the construction phase are presented within Table E8, **Appendix E**. From the EIA assessment the following high-level requirements are as follows:
- Management and mitigation strategies for specific habitats and Statutory/non-Statutory sites, including the Therfield Heath SSSI; Ivel Springs LNR; Weston Hills LNR and the Bygrave Road Local Wildlife Site (LWS). The locations of these protected areas will be presented within **Appendix A – Constraints plan** which will be included within the detailed CEMPs.
 - Mitigation and monitoring requirements for protected or notable species known to be present within or near to the Site boundary. These include:
 - Amphibians (e.g., Smooth Newt and common frog). Notably, no Great Crested Newt (GCN) have been recorded within the area.

- Bats (e.g., common and soprano Pipistrelle, Myotis species, Noctule, Liesler's, Barbastelle and brown long-eared)
 - Badgers
 - Hedgehog
 - Birds (e.g., Skylark and Corn Bunting)
 - Hedgehog
 - Reptiles
 - Flora (e.g., Lizard Orchid); and,
 - Brown Hare.
- Construction lighting will be tightly controlled in sensitive areas, especially along retained linear and edge habitats that function as ecological corridors, particularly:
 - Boundary hedgerows, tree lines and field margins that support bat commuting and foraging.
 - Habitat edges along Bygrave Road, Ashwell Road and the northern Site boundary, where survey data recorded higher bat activity.
 - The eastern fringe of Ivel Springs LNR, which is connected to the Site via vegetation and hydrological pathways.
 - The south-eastern compartment supporting species-rich grassland and lizard orchid.

Therefore, specific construction lighting mitigation measures will be utilised within or in close proximity to these areas. These include using directional cowled fittings, low-lux lighting, motion sensors, and time restrictions. Additionally, Lighting columns will be kept to a minimum height and directed away from vegetated features to avoid spill into dark corridors. These measures will help to minimise disturbance to light-sensitive species such as brown long-eared bat and barbastelle, even where activity levels are low. Construction lighting mitigation specifics can be found in Section 2.33 and Table E12, **Appendix E** of this document.

- Although construction-phase lighting and noise cannot be wholly eliminated, their effects will be mitigated by limiting certain construction activities in close proximity to sensitive habitats during early morning (sunrise to 09:00 am) and evening periods (16:00 pm to dusk), when birds are most active in courtship and feeding. This includes vegetation clearance, soil stripping, heavy plant operation, piling, or similar high-impact works undertaken close to retained hedgerows, field margins or nesting bird habitats. Timings will be seasonally adjusted by the ECoW to reflect changing daylight hours. Construction lighting and noise mitigation specifics can be found in Tables E12 and E2, **Appendix E** respectively.

- 2.19.2 The necessary consents, licences/permits, and exemption requirements will be obtained following consultation with the relevant regulatory body or organisation (e.g., Natural England). The Principal Contractor (PC) will be required to adhere to all permits, consents, and licences necessary during construction of the scheme.
- 2.19.3 The Register of Consents, Licences and Exemptions (**Appendix C**) will be maintained and kept up to date by the PC and made available for audit by the Environmental Manager. The register will include details of Project team members with responsibility for obtaining licences/permits, together with a programme for obtaining them, dates valid to/from (if relevant) and any notification requirements (e.g., on completion of works or in the event of a breach of consent/licence conditions).

- 2.19.4 If a requirement to obtain a mitigation licence for bats, and the derogation licence for badgers is identified, the application requires an Ecologist who is eligible to act as a Natural England licence holder to be the 'Named Ecologist' on each licence. The Named Ecologist is a professional ecologist who has satisfied Natural England that they have the relevant skills, knowledge, and experience of the species concerned and is responsible for undertaking and/or overseeing the work undertaken in respect of the licensed species. The Named Ecologist has a responsibility for ensuring that the licence is complied with during the operation of the Project.
- 2.19.5 A 'Licensee' named on any licence is responsible for ensuring that all activities conducted on site in relation to the licence comply with the terms and conditions of the licence. This would usually be the client or Project Manager for the relevant Scheme.
- 2.19.6 An 'Accredited Agent' is a suitable trained and experienced person who is able to conduct work under a licence without the personal supervision of the Named Ecologist. Any Accredited Agent must be appointed by the Licensee and be in possession of a letter signed by the Licensee confirming their appointment. Agents shall carry a copy of the said letter when acting under the licence and shall produce it to any police or Natural England officer on request.
- 2.19.7 An Ecological Mitigation Plan and the Ecological Management Plan will be developed to further outline management/mitigation of ecology and wildlife during the construction phase.

2.20 Management of Ground Conditions

- 2.20.1 Ground condition impacts have been assessed within Chapter 12 of the ES. Specific mitigation measures associated with the construction phase are presented within Table E9 **Appendix E**. From the EIA assessment the following high-level requirements are as follows:
- Earthworks to be carried out in accordance with BS6031:2009
 - Design in accordance with BS8103-1:2011, BS 8485:2007, NHBC Standards, BRE best accepted practice guidance and Building Regulations requirements
 - Construction workers should be briefed on potential for encountering previously unforeseen contamination.
 - Ground investigation to confirm presence of any significant contaminant linkages. Widespread hardstanding at the surface and clean cover system in garden areas and soft landscaping which will break direct contact pathways between any contamination and future site users.
- 2.20.2 Appropriate Management of soils will be maintained throughout the construction phase. The detailed CEMPs will provide comprehensive guidance on soil handling and management and will include, handling constraints, field testing, soil stripping, nutrient testing, unexpected contamination (including procedures), soil storage, soil segregation, soil restoration and stockpiling.
- 2.20.3 A Materials Management Plan (MMP) will be developed to describe the procedures by which soil arising material resources will be managed during the construction works to be completed for the Scheme. The MMP will set out a framework that defines the materials to be reused, their suitability for reuse, and how the contractors will demonstrate the adherence to the requirements. The MMP will be produced in line with the CL:AIRE DoWCoP protocol. The MMP will be developed and delivered alongside the detailed CEMP.

2.21 Management of Socio-Economics and Health

- 2.21.1 Socio-economic and health impacts have been assessed within Chapter 13 of the ES. Specific mitigation measures associated with the construction phase are presented within Table E10, **Appendix E**.
- 2.21.2 Detailed Construction Environmental Management Plans will be prepared for each phase prior to commencement of any development on the site, to mitigate construction effects on the environment as well as on the amenity (and in turn health) of both existing and new residents. This will include any and all measures associated with the management of dust, noise and vibration in line with best practice.
- 2.21.3 Any threat to the safety and well-being of construction personnel and pedestrians can be significantly reduced so long as construction guidelines are followed. A way to ensure this would be to utilise construction companies that are willing to be accredited with the Considerate Contractors Scheme. Assuming this is followed, construction sites, companies and suppliers voluntarily register with the Scheme and agree to abide by the Code of Considerate Practice, designed to encourage best practice beyond statutory requirements. This includes protecting the environment, respecting the community, securing the safety of people on and off-site, and valuing the workforce. The assumption is that prior to development taking place, there will be a procurement of contractors who already adhere to these schemes and accreditations.
- 2.21.4 During the construction phase, health and safety procedures will mitigate risks identified such as injuries to construction workers and management of construction traffic via the detailed CTMP.

2.22 Recycling and Waste Management

- 2.22.1 Waste impacts have been assessed within Chapter 14 of the ES. Specific mitigation measures associated with the construction phase are presented within Table E11, **Appendix E**.
- 2.22.2 The Principal Contractor (PC) maintains the overall responsibility for legal compliance and delivery of recycling and waste management and will see that subcontractors are contractually bound to comply with the legal and industrial standards outlined below and within the detailed Site Waste Management Plan (SWMP) which will be produced and submitted alongside the detailed CEMPs.
- 2.22.3 All waste arising from the construction will be managed and disposed of in accordance with all current legal and industrial standards including:
 - Environmental Protection Act 1990 (as amended)
 - Clean Neighbourhoods and Environment Act 2005
 - Environment Act 2021
 - Waste (England and Wales) Regulations 2011
 - The Hazardous Waste (England and Wales) Regulations 2005
 - The Environmental Permitting (England and Wales) Regulations 2016
 - Controlled Waste (England and Wales) Regulations 2012
- 2.22.4 Best Practice Guidance on the preparation of waste management plans for construction and demolition projects.
 - DEFRA Waste Hierarchy Guidance
 - EA guidance on WM3 (waste classification)

- WRAP (Waste and Resource Action Programme)
- CIRIA C and D waste guidance
- PAS 402:2013 (for waste contractors' performance reporting)

- 2.22.5 There will be limited disposal of material off site as it is proposed to store all excavated material on site for reuse. General construction waste which can be recycled will be segregated on site and collected by an approved collection contractor.
- 2.22.6 No burning of waste will be permitted on site.
- 2.22.7 The Contractor will be required to provide records of all waste disposed from the site. These records will contain information on haulage contractor, location of disposal of the material, quantity of material disposed, licences for the reception facility and licences for the haulage contractor.
- 2.22.8 In the event that hazardous soil, or historically deposited hazardous waste is encountered during the work, the contractor must notify the local authorities, and provide estimated tonnages, description of location, any relevant mitigation or monitoring proposed, and destinations for authorised disposal/treatment, in addition to information on the authorised waste collector(s)
- 2.22.9 In order to control the waste generated during site preparation and construction, the contractor(s) will separate the main waste streams on-site, prior to transport to an approved, licensed third party waste facility for recycling or disposal.
- 2.22.10 A Site Waste Management Plan (SWMP) ~~and a Remedial Strategy~~ will be prepared by the contractor(s), which will specify the waste streams which would be monitored and targets set with regards to the waste produced, including any re-use and recycling of materials. These will be finalised with specific measures to be implemented prior to the start of construction. All waste to be removed from the Site will be undertaken by licensed waste carriers and taken to licensed waste facilities.

2.23 Control of Light

- 2.23.1 Lighting impacts have been assessed within Chapter 15 of the ES. Specific mitigation measures associated with the construction phase are presented within Table E12, **Appendix E**.
- 2.23.2 Any lighting during the construction stage will be temporary in nature and will only be used during working hours. Generally, generator mounted tower floodlights will be used as when required for vehicular access to the site, pedestrian / worker circulation and any contractor compounds. Any floodlighting installed and used will be pointed into the site and away from any identified sensitive receptors.

2.24 Climate Change Management

- 2.24.1 Climate change impacts have been assessed within Chapter 17 of the ES. Specific mitigation measures associated with the construction phase are presented within Table E14, **Appendix E**.
- 2.24.2 Upfront Embodied Carbon comprises GHG emissions arising from the building's upfront stages including material manufacturing, transport and construction and is referenced as Stages A1-A5. The construction stage (i.e., materials manufacture, transport and construction) is typically the largest source of GHG emissions across a buildings lifecycle. Mitigating this element therefore significantly reduces emissions.

- 2.24.3 Specific mitigation measures for climate change impacts are difficult to determine at this stage of the project. Future detailed and Reserved Matters applications will incorporate a Life Cycle Assessment to demonstrate how each Phase will meet the targets set out above.

2.25 Existing Utility Management

- 2.25.1 Construction impacts to existing utility assets have been assessed within Chapter 16 of the ES. Specific mitigation measures associated with the construction phase are presented within Table E13, **Appendix E**. From the EIA assessment the following high-level requirements are as follows:
- Use of industry standard safe digging practices and safe working procedures; including the verification of asset location through radar scans and hand dug trial excavations in compliance with Health and Safety Executive Guideline 47 (HSG47) 'Avoiding Danger from Underground Utility Services', and the use of Health and Safety Executive Guideline 6 (GS6) 'Avoiding Danger from Overhead Power Lines'.
 - Adherence to the specific site safety guidelines and working procedures which are to be provided by the relevant utility asset owner where works are to be undertaken in the vicinity of utility assets.
- 2.25.2 The requirement for asset protection measures and/or network reconfiguration can be agreed with the relevant asset owner to mitigate the impact of off and on-site construction works on existing utility assets. These works can be included within the relevant construction programming and developed as the development progresses to detailed design stage.

2.26 Responding To Environmental Incidents and Emergencies

- 2.26.1 An Emergency Response and Contingency Plan will be developed in consultation with the relevant local authority emergency planning officer, emergency services including the local fire service, as well as the Environment Agency in relation to responding to flood warnings and events.
- 2.26.2 The plan will detail the procedures for responding to environmental incidents and emergencies on site, and any reporting.

2.27 Environmental Management Plans and Best Practice

- 2.27.1 Specific management, mitigation and monitoring measures as well as best practices associated with the construction of the project in its entirety will be detailed within the following:
- The detailed CEMPs which will be prepared for each phase (BA1, BA3 and BA10).
 - Site material and waste management informed by the Site Waste Management Plan (SWMP) and Remedial Strategy
 - Dust management and air quality informed by site Dust Management Plan (DMP)
 - Ecology and biodiversity informed by a site-specific Ecological Mitigation Plan and Ecological Management Plan
 - Procedures by which soil arising material resources will be managed during the construction phase will be informed by the Material Management Plan (MMP)
 - Traffic arrangements informed by site construction phase Construction Traffic Management Plan (CTMP)

- 2.27.2 These management plans will be developed and submitted as part of the detailed CEMPs and will be presented in full within **Appendix B** once finalised.

3 Monitoring

- 3.1.1 Monitoring and reporting will be undertaken for the duration of the construction phase in order to demonstrate the effectiveness of the measures set out in the detailed CEMPs and related construction controls and allow for corrective action to be taken where necessary.
- 3.1.2 As part of the monitoring process, the designated Environmental Manager will be present on-site throughout the construction process and when new activities are commencing. The Environmental Manager will observe site activities and report any deviations from the detailed CEMPs in a logbook, along with the action taken and general conditions at the time. The Applicant will be informed of any deviations from the CEMPs as soon as possible following identification of such issues. The Environmental Manager would also act as a day-to-day contact with relevant local authorities and other regulatory agencies such as the Environment Agency.
- 3.1.3 During construction, the Environmental Manager will conduct walkover surveys to ensure all requirements of the CEMPs are being met. Action from these surveys will be documented on an Environmental Action Schedule, discussed with the Site Manager for programming requirements and issued weekly for actioning.
- 3.1.4 The Environmental Manager will also arrange regular formal inspections and audits to ensure the requirements of the detailed CEMPs are being met. Details of monitoring, inspection, and audits to be undertaken will be provided in the CEMPs. After completion of the works, the Environmental Manager will conduct a final review.
- 3.1.5 The Environmental Manager will also help organise and instruct monitoring for specific environmental topics covered within the ES. They will appoint suitable and qualified person(s) (e.g., an ECoW or approved consultant) to undertake monitoring activities and will be responsible for their professional conduct and safety when on site.

3.2 Records

- 3.2.1 The Environmental Manager/ Construction Project Manager will retain records of all monitoring, inspections, and audits. These records will include:
- Results of routine site inspections by Environmental Manager / Construction Project Manager;
 - Environmental surveys and investigations;
 - Environmental Action Schedule;
 - Environmental equipment test records, Licences, and approvals; and
 - Corrective actions taken in response to incidents, breaches of the approved CEMPs or complaints received from a third party.
 - The Detailed CEMPs will be updated if it is necessary to add additional control measures, with a full review as required throughout the construction period. Existing control measures and mitigation will not be amended without prior agreement with the relevant local authority or external regulators.

Appendices

Constraints Map

This Section is a placeholder for an environmental constraints map which will be developed during the detailed design process and submitted as part of the detailed Construction Environmental Management Plan.

The purpose of the Constraints Map is to provide an all-encompassing drawing which highlights the key environmental constraints, survey results, receptors and mitigation measures that are or will be present within the Site boundary. It will cover majority of the environmental topics assessed within the ES and will allow contractors/construction teams to have a visual aid for identifying environmental risks when working on site. A demonstration of where to find and how to use this Constraints Map will be covered in a ToolBox Talk (TBT).

It is crucial that any updates to the data presented within the Constraints Map are captured in a subsequent revision of said map, ensuring that the on-site team possess the latest environmental information to hand at all times.

[EXAMPLE BELOW]

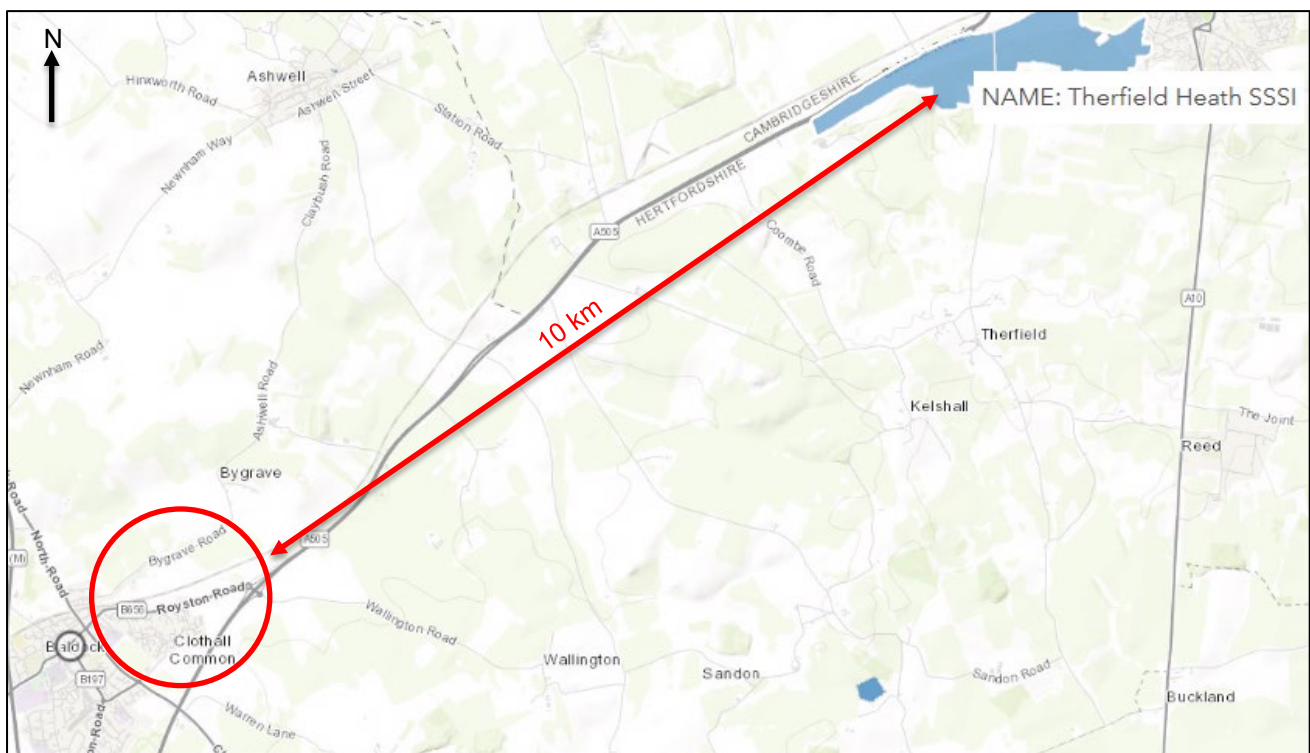


Figure A1: Example of Constraints Mapping.

Appendix B

Complementary Plans and Procedures

Where relevant, a suite of complementary environmental plans and procedures will be written and provided alongside or as part of the detailed Construction Environmental Management Plans (CEMPs). These will set out the proposed actions, best practices, and mitigation measures for the construction phase.

The suite of environmental management plans will include:

- Site material and waste management informed by the Site Waste Management Plan (SWMP)
- Dust management and air quality informed by site Dust Management Plan (DMP)
- Ecology and Biodiversity informed by a site-specific Ecological Mitigation Plan and an Ecological Management Plan
- Procedures by which soil arising material resources will be managed during the construction phase will be informed by the Material Management Plan (MMP)
- Traffic arrangements informed by site construction phase Construction Traffic Management Plan (CTMP)

Appendix C

Consent, Licence and Permit Requirements

This section of the EMP should be used to detail all of the consents, licences and permits that are required for the implementation of environmental mitigation during the construction of The Scheme. Copies of the consents, licences and permits, once obtained, will be held on site and available for inspection.

Should any environmental consents, licences or permits be required due to elements of design, construction, or operation, it is the PC responsibility to ensure that the appropriate process is followed to receive the expected permissions. This includes liaison and consultation with the relevant authority, regulator, or governing body.

Any conditions included in the consents, licences and permits will be documented in a consents register. A consents register will be developed and operated by the PC as part of their Environmental Management System, which forms part of the overall project Integrated Management System.

Table B1 provides details of anticipated consents, licences and permits required to deliver 'The Project'. If required, this table will be refined further for the detailed CEMP to cover developments through the detailed design; construction planning phase, and throughout the construction phase, in order to capture all relevant items and ensure that all information regarding the status of said consents, licences and permits are kept up to date.

Example text has been provided within Table B1 to provide guidance on how this Appendix can be used in future.

Table B1 – Consent(s); Licence(s) and Permit(s) register

Issue:	Consent / Licence / Permit Agreement and Legislation:	Consenting Authority:	Requirement:	Required for construction?	Status?
<i>[EXAMPLE] Protected species licencing</i>	<i>A license under section 10 of the Protection of Badgers Act 1992</i>	<i>Natural England (NE)</i>	<i>Active badger setts have been identified within the project boundary and will require closure. This consent is therefore required prior to commencement of construction activities.</i>	<i>Yes, badger sett closure is required to facilitate completion of the works.</i>	<i>Currently engaging with NE.</i>

Variations to Consents, Licence and Permits

This section should be used to provide details of any variations to the consents, licences or permits presented within **Appendix B** above.

Table C1 – Consent(s); Licence(s) and Permit(s) register of variations

Consent / Licence / Permit Agreement and Legislation:	Consenting Authority:	Variation Details and Rationale:	Supporting Evidence:	Status?
<i>[EXAMPLE] Groundwater consent has previously been approved for activities which may impact on sub-surface aquifers.</i>	EA	<i>A change in design/construction activities has meant that the impact (temp or perm) has increased and therefore further engagement with the EA is required to vary the consent to capture said change in design/construction activities.</i>	<i>Groundwater Risk Assessment Review of the GW monitoring data. Mitigation strategy for the activity or permanent design change.</i>	<i>Evidence sent to EA triggering the 56 day determination period. Awaiting feedback from Joe Bloggs at the Environmental Agency.</i>

Environmental Impact Assessment – Summary of Impact, Mitigation and Monitoring

Purpose

- 3.2.2 This Appendix of the Outline CEMP provides a detailed summary of the environmental impacts anticipated to arise during the construction phase which have been identified during the baseline assessments informing the Environmental Statement for the Scheme. Further details can be found within the specific ES Chapters produced for each topic:
- ES Chapter 4: Transport
 - ES Chapter 5: Noise and Vibration
 - ES Chapter 6: Air Quality
 - ES Chapter 7: Landscape and Visual
 - ES Chapter 8: Built Heritage
 - ES Chapter 9: Archaeology
 - ES Chapter 10: Hydrology and Flooding
 - ES Chapter 11: Ecology
 - ES Chapter 12: Ground Conditions
 - ES Chapter 13: Socio-Economics and Health
 - ES Chapter 14: Waste
 - ES Chapter 15: Lighting
 - ES Chapter 16: Utilities
 - ES Chapter 17: Climate Change
- 3.2.3 This Section also sets out the currently anticipated mitigation and management measures to be included as a minimum in the detailed CEMPs as well as indicative monitoring requirements where possible.
- 3.2.4 This section will be expanded upon within the detailed CEMP and will refer directly to the applicable management plan(s) which are to be used on site as appropriate.

Appendix E: Transport

Table E1 – Transport

Potential Impact (Construction)	Mitigation/Management/Enhancement Measure(s)	Monitoring Requirements
This Transport assessment contained within Chapter 4 of the ES has identified that the development would bring <u>significant benefit</u> to the area of Baldock, whilst encouraging a shift to active and public transport in line with local policy. Specific Transport management measures can be found in Sections 2.5 to 2.12 of this OCEMP.	<u>Mitigation measures</u> No adverse impacts identified within Chapter 4 of the ES and therefore no mitigation measures are proposed. <u>Enhancements</u> The development will specifically provide: ▪ Significant improvements to the local pedestrian and cycling environment, including improvements to ▪ specific areas of low safety and high severance along Royston Road, ▪ Two new connections over the railway line, reducing severance for active travel users between the north and south, ▪ Substantial improvements to local bus services, with the proposed shuttle bus operating as a key facet of the proposed deliverables, maximising the potential of existing public transport connections into Baldock, ▪ At least one vehicle charging spot per dwelling, to support the shift to low-carbon transport in line with Decarbonising Transport, and ▪ Improvements to local junctions to increase dedicated space for cyclists and pedestrians whilst ensuring easy traffic movement to prevent increases in congestion.	N/A

Appendix E: Noise and Vibration

Table E2 – Noise and Vibration

Potential Impact (Construction)	Mitigation/Management/Enhancement Measure(s)	Monitoring Requirements
Construction Noise Impacts During the earthworks and construction phase, any work carried out at the site are likely to generate noise that may propagate beyond the boundary of the Site. As previously stated, detailed information regarding the nature and timescales of activities likely to take place during the earthworks and construction phase are not known at this stage. Activities on the site that could give rise to construction related noise impacts include (but are not limited to) the following: - Site preparation (e.g. ground excavation, levelling of ground, trenching, trench filling, unloading and levelling of hardcore and compacting filling). - Construction of the Proposed Development, including piling, the creation of access roads, fabrication processes (e.g. planing, sanding, routing, cutting, drilling and laying foundations).	Noisy construction works will be restricted to daytime hours, typically between 0800- and 1800-hours Monday to Friday and 0800 to 1300hrs Saturdays, with no noisy work permitted on Sundays or Bank Holidays. When works are taking place within close proximity to the sensitive receptors identified, the screening of noise sources via the erection of temporary screens will be employed. All machinery will be regularly maintained to control noise emissions, with particular emphasis on lubrication of bearings and the integrity of silencers. Site staff will be made aware that they are working adjacent to a sensitive area and avoid all unnecessary noise due to misuse of tools and equipment, unnecessary shouting and radios. As far as possible, the avoidance of two noisy operations occurring simultaneously in close proximity to the same sensitive receptor. Adherence to any time limits imposed on noisy works by the local authority. Ensure engines are turned off when possible. Should earthworks and construction activities need to be carried out during night-time hours, the local authority may include a planning condition that requests advance notice and details of any night working to be provided. The detailed CEMPs will require that best working practice will be implemented during each phase of the earthworks and construction works at the Site. The construction works will follow the guidelines in BS5228-1 and the guidance in BRE 'Controlling particles, vapour and noise pollution from construction sites', Parts 1 to 5, 2003.	N/A
Construction Vibration Impacts As a worst-case scenario, earthworks and construction works may potentially take place at approximately 5m from residential properties. At this distance, it is considered possible that vibration due to the operation of construction machinery will be above the threshold of complaint. However, occurrences such as this would be transient only and for very limited periods during the works (i.e. when activities take place at the Site's boundaries, close to proposed dwellings, once occupied). In addition to the earthworks and construction works described, it is possible that piling will be required. At this time, the type(s) of piling that would be used at various locations across the site is not known and it is likely that the contractor responsible for undertaking construction works at	To keep ground borne vibration to a minimum the following measures (as referred to in BS5228-2) will be put in place and enshrined within the detailed CEMPs: - Substitution: Where reasonably practicable, plant and or methods of work likely to cause significant levels of vibration at the receptors identified will be replaced by less intrusive plant/methods of working; and - Isolation of plant at source: This may prove a viable option where the plant is stationary (e.g. a compressor, generator) and located close to a receptor. There are a number of measures that can be implemented, depending upon the type of piling chosen (e.g. continuous flight auger (CFA) piling produces significantly less vibration than conventional driven piling and, therefore, fewer mitigation measures would be required if CFA piling were chosen as the preferred method). BS5228-2 indicates that mitigation might include the use of alternative methods, removal of obstructions, provision of cut-off trenches, reduction of energy input per blow, reduction of resistance to penetration, etc. As the construction	N/A

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the site would decide the appropriate method of piling required.	programme and methodologies become more defined, earthworks and construction vibration will be reviewed and a detailed strategy for control will be devised and implemented. The detailed CEMPs will require that best working practice will be implemented during each phase of the earthworks and construction works at the Site. The construction works will follow the guidelines in BS5228-1 and the guidance in BRE 'Controlling particles, vapour and noise pollution from construction sites', Parts 1 to 5, 2003.	
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Appendix E: Air Quality

Table E3 – Air Quality

Potential Impact (Construction)	Mitigation/Management/Enhancement Measure(s)	Monitoring Requirements
<u>Dust Impacts</u> Dust impacts are anticipated during the construction phase. The main sources of these impacts are: - Demolition of existing buildings/structures (estimated volume of 12,000 to 75,000 m³). - Earthworks for a site area of over 110,000 m² - Construction of buildings to complete the scheme (estimated volume of 75,000 m³). - Dust emissions from trackout (assumes >50 HGV vehicles p/day) Taking the site as a whole, the overall risk of dust impacts when considering the above activities is deemed to be high.	<u>Communications</u> Develop and implement a stakeholder communications plan that includes community engagement before work commences on site. Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager. Display the head or regional office contact information <u>Dust Management Plan</u> Develop and implement a Dust Management Plan (DMP) (which may include measures to control other emissions), approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. The DMP may include monitoring of dust. <u>Site Management</u> Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. Make the complaints log available to the local authority when asked. Record any exceptional incidents that cause dust and/or air emissions, either on- or off- site, and the action taken to resolve the situation in the logbook. Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes. <u>Preparing and Maintaining the Site</u> Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible. Use screening intelligently where possible – e.g. locating site offices between potentially dusty activities and the receptors. Erect solid screens or barriers around the site boundary. Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extended period. Avoid site runoff of water or mud.	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of the site boundary, with cleaning to be provided if necessary. Carry out regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of site boundary. Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions. Agree dust deposition, dust flux, or real-time PM10 continuous monitoring locations with the Local Authority. Commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. A shorter monitoring period or concurrent upwind and downwind monitoring may be agreed by the local authority. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.

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	Keep site fencing, barriers and scaffolding clean. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below. Depending on the duration that stockpiles will be present and their size - cover, seed, fence or water to prevent wind whipping. <u>Operating Vehicle/machinery and Sustainable Travel</u> Ensure all vehicles switch off engines when stationary – 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 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate) Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials. Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing). <u>Operations</u> Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible. Use enclosed chutes, conveyors and covered skips, where practicable. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. <u>Medium Risk Measures Specific to Demolition</u> Ensure effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground. Avoid explosive blasting, using appropriate manual or mechanical alternatives. Bag and remove any biological debris or damp down such material before demolition.	
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	<u>High Risk Measures Specific to Construction</u> Avoid scabbling (roughening of concrete surfaces) if possible. Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place. Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery. <u>High Risk Measures Specific to Trackout</u> Use water-assisted dust sweeper(s) on the access and local roads, to remove, as soon as practicable any material tracked out of the site. This may require the sweeper being continuously in use. Avoid dry sweeping of large areas. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as practicable. Record all inspections of haul routes and any subsequent action in a site log book. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site). Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits. Access gates to be located at least 10 m from receptors where possible.	
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Appendix E: Landscape and Visual

Table E4 – Landscape and Visual

Potential Impact (Construction)	Mitigation/Management/Enhancement Measure(s)	Monitoring Requirements
The landscape and visual effects during construction for most receptors would be confined to the period of the relevant phase of development, constrained to works along the leading edge facing the receptor and in the immediate background toward the center of the Application Site. Therefore, the impacts for each receptor would be of a shorter term than the timescale of the development as a whole. Given the mitigation measures outlined in the Lighting Assessment, this LVIA assumes good practice will be employed, minimising any nighttime visual impacts.	It is assumed that mitigation measures, including all 'soft' landscape works (such as topsoiling, planting and seeding), would be implemented during or towards the end of construction in each phase, with the potential for early establishment in select locations providing limited mitigation for the construction period. Therefore, the assessment of likely effects during construction deals with the worst-case scenario in terms of likely impacts on landscape and visual receptors prior to the establishment of any mitigation planting. The main construction stage mitigation measures of relevance to this LVIA include the following: ▪ All access to the Application Site for construction traffic would be obtained off North Road for BA1, off Royston Road for BA10, off Clothall Road for BA2 and BA3 for minimising any landscape and visual impacts as a result of these activities; ▪ Existing tree and scrub / shrub vegetation currently serving as a screen to adjacent landscape and visual receptors, but to be removed as part of the Proposed Development, would be retained within the construction site for as long as possible to minimise the impacts from the works; ▪ Existing tree and scrub / shrub vegetation to be retained as part of the Proposed Development (as indicated within the Arboricultural Impact Assessment) would be protected in accordance with BS5837:2012; and ▪ All other existing vegetation to be retained (e.g. grasslands and scrub – green space east of Clothall Common) as part of the Proposed Development would be protected in accordance with measures defined in Chapter 11 Ecology. Adherence to the mitigation measures set out within Chapter 14 Lighting of the ES and presented within Table E12 of this document.	It is understood that there are no monitoring requirements associated with LandV at this stage of the project.

Appendix E: Built Heritage

Table E5 – Built Heritage

Potential Impact (Construction)	Mitigation/Management/Enhancement Measure(s)	Monitoring Requirements
No significant impacts have been identified for Built Heritage. Please refer to Chapter 8 of the ES for further details.	No significant impacts have been identified for Built Heritage and therefore no mitigation or enhancement measures are proposed. Please refer to Chapter 8 of the ES for further details.	N/A

Appendix E: Archaeology

Table E6 – Archaeology

Potential Impact (Construction)	Mitigation/Management/Enhancement Measure(s)	Monitoring Requirements
<u>Direct Impacts</u> Removal/Destruction of archaeological remains. The construction-related activities that could result in this impact are: • Site clearance/demolition works; • Removal of topsoil and subsoil within the site; • Excavation works associated with building foundations; • Excavation works associated with the sustainable drainage corridor and SUDS basins, and the installation of services, highways infrastructure and the sustainable travel network; • Hard landscaping; • Rutting caused by vehicle movements; • Compression of the ground; and • Hydrological changes due to construction works and the removal of areas of hedgerow and vegetation. Any direct (physical) impacts to archaeological assets (and their associated heritage significance) would be permanent and irreversible. In particular, once buried archaeological remains are disturbed or removed without an appropriate record having been made, their context and relationship to other archaeological features and deposits is partially or completely lost and their heritage significance is, as such, likely to be reduced or lost completely.	Standard approaches to archaeological mitigation would be undertaken to ensure any remains which are located within the proposed development are excavated and recorded to a level appropriate to their heritage significance. The completed trial trench evaluations have identified areas of significant buried archaeological remains (Appendix 9.1, Figure 8) that may be impacted by the development. Once the outline planning application is approved, and as part of forthcoming reserved matters applications, those areas of significant buried archaeological remains which may be directly impacted by the development works, will be proposed for excavation and recording to ensure that they are appropriately managed prior to and /or during construction. Identification of these areas for mitigation would be undertaken by HCC HEAS and detailed within a Written Scheme of Investigation, submitted to, and approved by them. Consultation with the HCC HEAS has been sought to discuss these potential areas, with initial thoughts provided by HCC HEAS on potential mitigation areas. This approach to mitigation of impact to archaeological remains is considered industry standard in terms of ensuring they are appropriately preserved by record and the residual effect is generally considered to be possible to reduce or offset to non-significant in EIA terms. Industry standard good practice for archaeological mitigation for this site would be considered open area excavation, including presentation of analysis results within a publication and the physical archive being deposited with a local museum. This option involves machine stripping of topsoil/subsoil to the archaeological horizon. Features are excavated by hand to a percentage agreed with the HCC HEAS. This technique is often used where buried archaeological remains are of an importance and associated significance which requires a high sampling percentage of the remains. The archaeological mitigation (excavation and recording) works agreed with NCC HEAS would be timetabled to take place following approval of the outline planning application and prior to construction works commencing. It is expected this would be secured by a planning condition. It is anticipated that a phased approach will be taken to the construction of the development, commencing in area BA2, before progressing west to east across BA1 and BA10, and finishing in BA3. A phased approach to excavation may be undertaken to reflect this, where areas of archaeology are cleared to allow plots to be built. Mitigation for the protection of historic hedgerows considered important has been incorporated into the design specification with the intention to retain as much of the trees/hedgerows and vegetation of value within the development. Although this would not include all of the hedgerows of interest, due to the access to the different areas from along the roads that follow the parish boundaries, this indicates that parts of the hedgerows	Following mitigation by excavation. Mitigation by preservation <i>in-situ</i>: Areas will require fencing (HERAS) and no access to groundworkers. To be monitored by PC, ensuring CEMP is followed. Regular recorded site visits could be undertaken to ensure that no construction activity takes place within any areas of preservation in situ, except for any that are previously agreed.

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	marking these boundaries will not be removed. These boundaries are also not hedged along their entire length. If any areas in addition to Walls Field are identified for preservation in situ rather than further archaeological mitigation, regular recorded site visits could be undertaken to ensure that no construction activity takes place within them, except for any that are previously agreed. The preservation of areas of archaeological interest by preservation, would maintain the archaeological value of these remains, thereby retaining their medium significance. 9.6.8 With regard to the indirect impacts on designated heritage assets during the construction stage, the additional visual and auditory impacts, mitigation will use the best available techniques as outlined in the CEMP, including confined operational times, the erection of temporary screens. For visual impacts in particular, mitigation will include limiting access to the Site to specific points (off North Road for BA1, off Clothall Road for BA2 and BA3, and off Royston Road for BA10), retaining as much tree and scrub /shrub vegetation as possible, and where it currently acts as screening but is to be removed as part of the development it will be retained for as long as possible before removal. For auditory impacts, mitigation will include regular machine maintenance, avoiding unnecessary noise and turning engines off when possible to reduce the scale of the identified negligible impacts.	
<u>Indirect Impacts</u> Visual and auditory impact of works and machinery on designated archaeology during construction The designated heritage assets considered to have the potential to experience this type of impact are: ▪ Romano-British small town and Late Iron Age settlement at Baldock (NHLE 1016305); and ▪ Settlement site south of Blackhorse Farm (NHLE 1003548).	The indirect impact (mainly considered to be visual and auditory), will be mitigated through use of the best available techniques, for example: ▪ Suitable machinery, ▪ confined operational times. Although these would not prevent the noise from impacting the setting of the designated archaeological assets, they would reduce the scale of the impacts.	Client monitoring PC works ensuring adherence to the detailed CEMP.

Appendix E: Hydrology and Flooding

Table E7 – Hydrology and Flooding

Potential Impact (Construction)	Mitigation/Management/Enhancement Measure(s)	Monitoring Requirements
<u>Fluvial Flood Risk:</u> Fluvial flood risk to downstream receptors.	During the construction phase of the project, flood risks to and from the proposed development will be managed and mitigated through the implementation of a suitable temporary drainage strategy. This will need be developed by the contractor undertaking the works and will manage surface water quality and runoff volumes within the site. This will ensure that flood risk does not increase during the construction phase both within the Site and to downstream receptors.	It is not fully understood at this stage of the project as to whether monitoring of fluvial flood risk risk required during construction. Monitoring requirements will be reviewed for the detailed CEMPs and any updates will be captured here.
<u>Pluvial Flood Risk:</u> Surface water (pluvial) flooding of adjacent areas to the Site. Surface water (pluvial) flooding of the construction site.	During the construction phase of the project, flood risks to and from the proposed development will be managed and mitigated through the implementation of a suitable temporary drainage strategy. This will need be developed by the contractor undertaking the works and will manage surface water quality and runoff volumes within the site. This will ensure that flood risk does not increase during the construction phase both within the Site and to downstream receptors.	It is not fully understood at this stage of the project as to whether monitoring of pluvial flood risk risk required during construction. Monitoring requirements will be reviewed for the detailed CEMPs and any updates will be captured here.
<u>Groundwater flooding:</u> Groundwater flooding of the site during construction is expected to be very low risk.	During the construction phase of the project, flood risks to and from the proposed development will be managed and mitigated through the implementation of a suitable temporary drainage strategy. This will need be developed by the contractor undertaking the works and will manage surface water quality and runoff volumes within the site. This will ensure that flood risk does not increase during the construction phase both within the Site and to downstream receptors.	It is not fully understood at this stage of the project as to whether monitoring of groundwater flood risk risk required during construction. Monitoring requirements will be reviewed for the detailed CEMPs and any updates will be captured here.
<u>Water Quality:</u> Water quality impacts to surface watercourses. Water quality impacts to groundwater.	Specific mitigation measures identified within the Detailed CEMPs are likely to include silt traps, temporary drainage systems to manage overland flow, and the storage of fuels and chemicals in impermeable and bunded enclosures. Emergency action plans will be prepared and kept on site for implementation in the event of accidental spillage of hazardous or dangerous fuels/chemicals.	Regular inspections of the Site will be made to identify potential issues such as silt runoff and to ensure, for example, that good housekeeping regarding the use and storage of fuels and chemicals is maintained.

Appendix E: Ecology

Table E8 – Ecology

Potential Impact (Construction)	Mitigation/Management/Enhancement Measure(s)	Monitoring Requirements
<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> <u>Designated and Non-Statutory Sites</u> No statutory designated nature conservation sites lie within the redline boundary of the Proposed Development; however, several designated sites, both statutory and non-statutory, are located within the wider 5 km study area. These have been reviewed for potential sensitivity to construction-stage impacts, including habitat loss, dust and noise disturbance, hydrological disruption, and changes in air quality resulting from construction traffic and associated activities. Details of impacts determined for each designated and non-statutory site are provided below. Locations of these sites in relation to the scheme will be provided within Appendix A – Constraints Map as part of the Detailed CEMPs. Therfield Health (SSSI) (9.5 km northeast of the Site) – Absence of functional ecological or atmospheric pathways means that no significant construction-phase impacts are anticipated. Ivel Springs (LNR) (directly adjacent to western edge of the Site) - During the construction stage, there is a moderate risk of indirect impacts to Ivel Springs LNR through increased dust, sediment runoff, surface water contamination, and edge disturbance, particularly where construction occurs along the Site's north-western perimeter. Weston Hills (LNR) (South of the Site) - Construction-phase effects on Weston Hills LNR are likely to be limited to minor indirect air quality effects arising from increased vehicle movements. Bygrave Road (LWS) (on-site) - Subject to direct land-take and associated vegetation clearance during the early stages of construction. Construction activity within and adjacent to the LWS is expected to result in partial habitat loss and functional fragmentation, potentially interrupting species movement across	<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> Mitigation during the construction phase is primarily concerned with avoiding direct harm to species and habitats through sensitive timing, protection measures, and site management controls, and will be delivered via a project-specific detailed Construction Environmental Management Plans (CEMPs). Details of mitigation measures determined for each designated and non-statutory site are provided below. Locations of these in relation to the scheme will be provided within Appendix A – Constraints Map as part of the Detailed CEMPs. Therfield Health (SSSI) No specific mitigation measures identified. Ivel Springs (LNR) Due to the immediate proximity of Ivel Springs LNR to the western boundary of the Site and its known ecological connectivity via bat foraging routes and hydrological flows, a more comprehensive package of mitigation measures will be implemented to protect the site during construction. To manage dust, sediment and surface water movement during construction, best-practice controls will be implemented in accordance with the CIRIA SuDS Manual and relevant Pollution Prevention Guidelines (PPGs). These measures will be secured through the Construction Environmental Management Plan (CEMP) and are designed to prevent contaminated runoff or airborne particulates from entering adjacent sensitive habitats, including Ivel Springs LNR. Controls will include appropriate site drainage, pollution prevention measures, and monitoring as required to avoid indirect hydrological impacts. To reduce light pollution, temporary construction lighting will be installed with directional cowls, low-lux fittings, and restricted hours of operation. Lighting will be positioned to face away from the LNR and set at levels that avoid overspill into adjacent habitats, thereby reducing disturbance to nocturnal species including bats. Weston Hills (LNR) To maintain air quality within acceptable limits and to prevent cumulative degradation of sensitive receptors, the same dust suppression and emissions control measures adopted elsewhere on Site will also serve to protect Weston Hills LNR. Bygrave Road (LWS)	N/A

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the Site. Dust deposition and ground compaction may further reduce its ecological quality.	Any habitat clearance will be phased and conducted under ecological supervision, outside of the core bird nesting season wherever practicable, to allow mobile species such as birds and small mammals to disperse safely. A watching brief will be maintained throughout clearance to ensure that any features of ecological value—such as refugia or active nests—are identified and managed in accordance with current best practice and legal requirements. Where elements of the LWS are retained, these areas will be physically demarcated to prevent accidental encroachment by vehicles or machinery. Soil protection measures will be used to avoid compaction, and appropriate surface water management will be applied to reduce dust deposition and runoff that could otherwise degrade adjacent vegetation.	
<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> <u>Habitats</u> Construction works are expected to result in the direct and irreversible loss of most on-Site habitats, including extensive areas of intensively managed arable land, semi-improved grassland, modified grassland, and tall ruderal vegetation. These habitats form the baseline context for locally important farmland birds and mammals such as brown hare. Their removal therefore represents a significant reduction in habitat availability for species reliant on open, low disturbance fields. In addition, the removal of edge habitats and field margins is expected to reduce structural heterogeneity and eliminate foraging and refuge opportunities used by a range of terrestrial fauna. The south-eastern compartment, which supports a small patch of species-rich grassland including the nationally scarce lizard orchid, will be particularly sensitive to ground disturbance. Soil compaction, accidental overrun by machinery, and loss of hydrological or nutrient stability may degrade the conditions supporting this habitat, even if partial retention is achieved within the layout. Without protective measures, there is a high risk that both the plant community and its supporting soil structure could be significantly altered, reducing the viability of sensitive flora. Vegetation clearance will also result in the removal or severance of multiple hedgerows and scrub corridors across the Site. These features provide critical linear connectivity for commuting and foraging bats, nesting habitat for birds, and refuges for species such as hedgehog and reptiles. Their loss or fragmentation is expected to reduce landscape permeability and increase isolation of retained habitats.	<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> A habitat-specific mitigation strategy will be implemented to minimise the scale and duration of ecological degradation, safeguard features of particular interest, and retain functional connectivity where feasible. Clearance works will be phased to align with seasonal constraints for key faunal groups, particularly farmland birds and brown hare. Where appropriate, pre-clearance surveys will be undertaken to identify active nesting sites or leverets, and measures such as buffer zones, retention of field margins during early phases, and directional clearance will be used to avoid direct harm and provide opportunities for species to relocate into adjacent habitat. The south-eastern compartment of the scheme contains species-rich grassland and the lizard orchid. This area will be fenced off prior to the commencement of site-wide works and designated as an exclusion zone to prevent accidental encroachment or machinery overrun. Ground protection measures will be employed to prevent soil compaction, and a hydrological buffer will be maintained to preserve water and nutrient regimes. Where feasible, microtopography and existing turf will be retained in situ to preserve the soil structure and associated seed bank. If disturbance is unavoidable, soil translocation may be considered as a last-resort mitigation option, subject to prior botanical survey and soil profile characterisation. Scrub, woodland, hedgerows and scattered trees of ecological value will be retained where practicable, with temporary protective fencing erected around retained linear features. All tree works will be supervised in accordance with BS 5837 and under appropriate ecological guidance where protected species may be present.	BNG habitats (grassland, scrub, woodland, hedgerows, SuDS/wetland features): - Formal monitoring is required to demonstrate compliance with the Environment Act 2021 BNG duty (≥10% net gain secured for 30 years). - Habitat condition monitoring (botanical quadrats, hedgerow structure surveys, wetland checks) should be undertaken annually for the first 5 years, then at intervals (e.g. years 10, 20, and 30). - Monitoring results should be reported to the LPA and used to adapt management if habitats fail to reach target condition. - SuDS and wetland features should be checked for water quality, vegetation establishment, and invasive species

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<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> <u>Amphibians</u> Desk study data confirm the presence of common amphibian species, such as smooth newt (<i>Lissotriton vulgaris</i>) and common frog (<i>Rana temporaria</i>), within the surrounding 1–2 km landscape. No records of great crested newt (<i>Triturus cristatus</i>) have been returned within the immediate area, and the baseline confirms no suitable breeding ponds are present within or immediately adjacent to the Site boundary. Terrestrial habitat suitable for common amphibians are present within grassland margins, hedgerow bases, and field edges. These areas may serve as low-quality refuge or transit habitat, especially during periods of wet weather. Construction activity such as soil stripping, excavation, and vegetation clearance during site preparation has the potential to cause incidental injury or mortality to amphibians occupying these features. Additionally, ground disturbance and compaction may result in a temporary loss of habitat heterogeneity, reducing its suitability for amphibian movement across the Site during the construction phase.	<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> Vegetation removal and topsoil stripping within suitable terrestrial habitats will be carried out in a phased manner and timed to avoid peak amphibian activity periods where possible (typically late winter to early spring). The use of directional clearance – progressing slowly in one direction towards retained habitats or off-Site refuges. In areas supporting denser ground cover or higher moisture retention, such as the base of hedgerows, scrub margins, or depressions prone to waterlogging, an ecological watching brief will be maintained during clearance. Any amphibians found will be moved carefully by a suitably qualified ecologist to suitable retained habitat elsewhere within or adjacent to the Site. The use of hand tools in ecologically sensitive areas will further minimise harm. Where ground conditions or development phasing allow, features such as log piles, grass tussocks, or rubble refuges will be retained on Site until the latest possible stage of works, maintaining structural diversity that can be used by amphibians for temporary shelter. Any temporary fencing required during the construction phase will be installed with amphibian-permeable designs or subject to periodic checks to ensure that individuals are not trapped along boundaries or in excavations. If any deep holes or foundations are left open overnight, escape ramps will be used to prevent entrapment.	N/A
<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> <u>Bats – Roosting</u> Given the presence of both buildings and trees with potential to support roosting bats, but the lack of confirmed roosts to date, the Site is assessed as being of Site-level importance for roosting bats. This acknowledges the retained roost potential and connectivity within the landscape, while recognising that no active roosts have yet been recorded. <u>Bats – Activity</u> Bat activity surveys were undertaken across the Site in both 2022 and 2024, comprising transect walks and remote static detector surveys. Across both years, seven species of bat were recorded using the Site: • Common pipistrelle (<i>Pipistrellus pipistrellus</i>) • Soprano pipistrelle (<i>Pipistrellus pygmaeus</i>) • Myotis species • Noctule (<i>Nyctalus noctula</i>)	<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> Bats – Roosting Any trees with confirmed or high roost suitability that must be removed or pruned will be subject to a pre-works inspection by a licensed bat ecologist or further surveys. Where features cannot be conclusively ruled out as supporting roosts, soft-fell procedures will be implemented, involving sectional dismantling under ecological supervision with overnight resting periods to allow bats to disperse. If any active roosts are encountered during site clearance, all works in the vicinity will cease, and advice will be sought immediately from a licensed ecologist, with works proceeding only under an appropriate Natural England mitigation licence if required. Buildings with roost potential will also be subject to internal and external re-checks immediately prior to demolition or modification, with further surveys undertaken if new features or evidence of use are identified. Where demolition proceeds under a precautionary approach, toolbox talks will be provided to contractors, and works will be programmed to avoid peak bat activity periods where feasible (typically May to August).	Spot checks of key foraging/commuting corridors (e.g. along Bygrave Road LWS, SuDS corridor) to confirm effectiveness of sensitive lighting and habitat design.

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• Leisler's (<i>Nyctalus leisleri</i>) • Barbastelle (<i>Barbastella barbastellus</i>) • Brown long-eared (<i>Plecotus auritus</i>) Given the diversity of species recorded, but consistently low activity levels and restriction to field margins and hedgerows, the Site is assessed to be of Site-level importance for bat activity, supporting generalist and widespread species in low numbers, with no evidence of notable assemblages or high-intensity foraging areas.	Lighting design and construction activity near retained structures will be controlled to minimise disturbance to roosting features that are to be retained, with limitations on artificial light intensity, direction, and duration. <u>Bats – Activity</u> Vegetation removal will be carefully phased to retain key connective features—particularly along Bygrave Road, Ashwell Road, and the northern boundary—for as long as practicable during site clearance and early construction. Where temporary severance occurs, interim habitat links will be created using linear fencing and planting or artificial structures such as bat hop poles to maintain movement across the Site. Construction lighting will be tightly controlled in sensitive areas, especially along retained field margins, using directional cowled fittings, low-lux lighting, motion sensors, and time restrictions. Lighting columns will be kept to a minimum height and directed away from vegetated features to avoid spill into dark corridors. These measures will help to minimise disturbance to light-sensitive species such as brown long-eared bat and barbastelle, even where activity levels are low. Construction lighting mitigation specifics can be found in Table E12 of this document.	
<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> <u>Badger (<i>Meles meles</i>)</u> Based on current evidence, the Site is not considered to support an active badger social group, nor does it lie within the core territory of a known population.	<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> Prior to the commencement of any vegetation clearance or intrusive groundworks, a pre-construction badger check will be undertaken by a suitably qualified ecologist. If an active sett is identified within 30 m of any proposed works, appropriate mitigation will be implemented in line with Natural England guidance. This may include the establishment of an exclusion buffer, temporary protective fencing, or the need to apply for a development licence if closure, disturbance, or obstruction of a sett is unavoidable. Where works are to occur near disused or low-use setts, these areas will be clearly demarcated, and exclusion zones of up to 30 m will be observed to avoid accidental damage. Construction activities such as excavation, trenching, or installation of services will be managed to prevent accidental injury to badgers. Any trenches or pits left open overnight will include escape ramps to allow trapped animals to exit safely. Contractors will be briefed on badger ecology and legal protections through toolbox talks delivered by the ecological clerk of works. Construction lighting in peripheral areas will be controlled to minimise nighttime disturbance along hedgerows or potential commuting routes.	Pre-construction sett checks remain necessary where works interface with potential habitat. Post-construction, only periodic inspections of retained green corridors and sett locations (if still present) are required, mainly for compliance with the Protection of Badgers Act. No long-term population monitoring is anticipated.
<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> <u>Birds – Breeding Assemblage</u> In total, the Site supports a diverse assemblage of breeding birds, with legally protected and conservation-priority species present. The overall assemblage is dominated by species	<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> To prevent destruction of active nests and associated offences under the Wildlife and Countryside Act 1981 (as amended), no vegetation clearance will be undertaken during the core bird nesting season (typically March to August inclusive) unless pre-clearance checks by a suitably qualified ecologist confirm the absence of active nests. Where nesting is confirmed, vegetation will be left undisturbed until chicks have fledged, and	<u>Corn Bunting (and wider farmland bird assemblage):</u> • Monitoring of dedicated mitigation/management areas (e.g. fallow margins, wild bird seed mixes, set-aside land) is required to

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typical of open farmland and structurally diverse edge habitats. In line with published criteria for determining ecological importance, the Site is assessed to be of County-level importance for breeding corn bunting and of District-level importance for the wider breeding bird assemblage. Continued presence of priority species across multiple years indicates a stable or recovering breeding population at a local scale, though the assemblage remains sensitive to changes in habitat quality, agricultural intensity, and development pressure.	exclusion zones will be marked out to ensure no accidental encroachment occurs during this period. Habitat manipulation may be required outside of the breeding season—such as winter topping or shallow cultivation—to discourage nesting, thereby reducing the risk of nest establishment in the spring. Alternatively, phased clearance may be employed in non-breeding windows to retain areas of undisturbed habitat while works progress elsewhere. In areas supporting high-value territories, particularly those known to support corn bunting, efforts will be made to retain and protect rough margins, field edges, and scrub patches during early phases of construction. Construction-phase lighting and noise will be mitigated by limiting work in proximity to sensitive habitats during early morning and evening periods, when birds are most active in courtship and feeding. Construction lighting and noise mitigation specifics can be found in Tables E12 and E2 respectively. Machinery will be routed away from retained margins wherever feasible to reduce unnecessary encroachment into key breeding zones.	confirm continued territory occupation. - Breeding bird surveys (territory mapping) should be undertaken at least every 2–3 years for the first 10 years, particularly within and adjacent to designated mitigation sites (e.g. Bygrave Common). - Monitoring should assess both species presence and effectiveness of habitat management (sward structure, seed availability, winter stubble cover). - Adaptive management may include reseeded, extending margins, or adjusting mowing/grazing regimes.
<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> <u>Invertebrates</u> As construction activities will largely avoid high-value habitats, direct impacts on invertebrate populations are expected to be minimal.	<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> To minimise dust and airborne particulate deposition onto sensitive grassland and hedgerow margins, standard dust suppression measures will be adopted throughout the construction phase. These will be included within the Dust Management Plan as part of the Construction Environmental Management Plans (CEMPs). To prevent accidental encroachment into high-value invertebrate habitat, temporary protective fencing will be installed prior to any nearby site clearances and maintained throughout construction. Site operatives will be made aware of the sensitivity of these areas through toolbox talks, ensuring that vehicle access, storage of materials, and spoil deposition do not occur within or immediately adjacent to retained habitat compartments. Where any works are required within close proximity to species-rich grassland or calcareous features, these will be scheduled for periods of lower invertebrate activity where feasible (e.g. early spring or late autumn).	Monitoring of calcareous grassland creation (kidney vetch establishment) in the south-east compartments. Check every 3–5 years for larval food plant presence and incidental records of small blue.
<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> <u>Hedgehog (<i>Erinaceus europaeus</i>)</u> The Site is assessed to be of Local-level ecological importance for hedgehog. This reflects the suitability of habitats present and the contribution the Site may make to maintaining habitat continuity in a wider landscape experiencing pressures on hedgehog populations.	<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> Prior to the commencement of any vegetation clearance, pre-clearance checks will be undertaken by an experienced ecologist to identify any signs of hedgehog presence or hibernation nests (hibernacula). Where potential refuge features are identified, these areas will be subject to a two-stage clearance process: initially strimmed to a low sward height under ecological supervision, followed by a 24-hour period to allow any individuals to move away naturally before ground-level works proceed. Where any hedgehogs are encountered during works, they	Monitoring tied to habitat suitability rather than direct population counts. Habitat audits within hedgerows, grassland corridors, and scrub mosaics every 3–5 years to confirm connectivity and refuge opportunities.

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No hedgehogs were recorded during baseline surveys, the availability of suitable terrestrial habitat—including hedgerows, rough grassland, woodland edges, and unmanaged field margins—indicates that the Site is likely to support low-density, transient use by hedgehogs for foraging and dispersal.	will be carefully relocated by a trained ecologist to a safe, retained area of suitable habitat within or near the Site boundary. The risk of entrapment during excavation will be addressed by ensuring that any trenches, pits or foundations left open overnight are fitted with escape ramps or covered securely. Where temporary fencing is required for security or exclusion purposes, gaps or 'hedgehog holes' will be included at ground level to allow continued movement across the landscape, especially along boundary features or corridors linking retained woodland and scrub habitats. Works likely to occur during the hibernation period (typically November to March) will be programmed with caution to avoid disturbing undetected individuals within areas of known refuge habitat. Efforts will be made to retain and buffer key linear features such as hedgerows and woodland edge margins during construction and will protected with temporary fencing to prevent accidental encroachment or compaction. Construction lighting will also be managed to reduce glare and light spill into adjacent habitats, thereby reducing the deterrent effect on nocturnal species such as hedgehog.	
<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> <u>Reptiles</u> Given the limited spatial extent of suitable habitat, the low-density population size, and the restricted range of species recorded, the Site is assessed to be of Local-level ecological importance for reptiles. This assessment reflects the ecological value of select compartments of the Site, rather than its entirety.	<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> Prior to any vegetation clearance or groundworks within compartments identified as having limited but potentially suitable habitat—particularly along southern and south-western field margins—a precautionary reptile method statement will be prepared and implemented under the supervision of a suitably experienced ecologist. The strategy will follow a two-stage clearance approach: 1. strimming of vegetation to a height of 150 mm to encourage reptiles to vacate the area naturally. 2. Following a settling period of 24–48 hours, a second clearance will reduce the sward to ground level, after which works may proceed. Vegetation clearance will be carried out during appropriate weather conditions and within the active season for reptiles (typically March to October). Where marginal areas are to be affected by stripping or excavation, these will be subject to a walkover search by an ecologist immediately prior to disturbance. Any reptiles encountered during this process will be carefully captured by hand and translocated to suitable retained habitat within the Site, such as the south-eastern compartment or retained and enhanced grassland areas. Receptor areas will be selected based on their structural suitability and continuity with existing refugia, and will not be subject to future disturbance during the construction period.	Monitoring of receptor areas/habitat management sites for 2–3 years post-construction, focusing on vegetation structure, basking/shelter opportunities, and incidental reptile presence.

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	The majority of reptile habitat—particularly the high-value grassland mosaic in the south—will be retained and where required, fenced off to prevent encroachment by machinery. This area will remain ecologically functional throughout the construction phase, ensuring that the local population retains sufficient shelter, foraging resources, and connectivity. Construction lighting in proximity to retained reptile habitat will be controlled to minimise disturbance and preserve thermoregulatory behaviour in basking areas.	
<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> <u>Flora</u> A small population of lizard orchid (<i>Himantoglossum hircinum</i>) was recorded within the south-eastern grassland compartment of the Site during the 2024 botanical assessment. This species is listed under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended). This species was recorded in isolation, and no broader assemblage of rare, scarce, or indicator plant species was identified across the Site. While lizard orchid is of conservation interest and contributes to the Site's biodiversity value, its presence is spatially restricted, and it does not occur alongside a wider suite of notable plant species that would warrant assessment at a higher geographic scale. As such, the Site is assessed to be of Local-level ecological importance for vascular plants, based on the confirmed presence of this Schedule 8 species in a limited area but in the absence of a notable botanical assemblage more broadly. In addition to the grassland and orchid interest described above, the 2024 botanical assessment also recorded a notable arable plant assemblage within a large arable field adjacent to the A505.	<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> The population of lizard orchid will be fully retained in situ during the construction phase. This retained grassland compartment will be clearly demarcated with protective fencing prior to commencement of construction, and no machinery access, materials storage, or ground disturbance will be permitted within this area. Dust suppression measures employed across the wider Site will limit particulate deposition, and construction activity will be physically separated from the orchid location, reducing the risk of trampling or hydrological alteration.	N/A
<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> <u>Brown Hare (<i>Lepus europaeus</i>)</u> The Site provides locally suitable foraging and breeding habitat for brown hare within its extensive arable fields and associated margins. As a Species of Principal Importance under Section 41 of the NERC Act, precautionary measures will be adopted during construction to minimise disturbance and displacement, particularly given the scale of habitat loss associated with the development footprint. Given the suitability of habitat, the direct observations of individuals during surveys, and the overall landscape context, the Site is considered to be of Local-level ecological importance for brown hare.	<i>Please refer to Chapter 11 Ecology of the ES for further details.</i> Vegetation clearance and soil stripping will be phased in a directional manner, proceeding slowly across the open fields towards retained habitat, scrub margins, or undeveloped field edges. This approach will allow mobile fauna, including brown hare, to vacate the area naturally ahead of machinery. Site operatives will be briefed to remain vigilant for active hares or leverets, and any sightings during clearance will be reported immediately to the Ecological Clerk of Works. Where construction activity is concentrated near areas of high visual openness or known hare activity, temporary buffer zones will be considered to reduce visual and acoustic disturbance. This may include limiting heavy construction traffic near retained margins during dawn and dusk periods when hares are most active.	Monitoring tied to habitat suitability rather than direct population counts. Habitat audits within hedgerows, grassland corridors, and scrub mosaics every 3–5 years to confirm connectivity and refuge opportunities.

Appendix E: Ground Conditions

Table E9 – Ground Conditions

Potential Impact (Construction)	Mitigation/Management/Enhancement Measure(s)	Monitoring Requirements
Creation of new landforms / construction plateaus by placement and compaction of site generated or imported fill.	Earthworks to be conducted in accordance with BS6031:2009 Ciria C574 Engineering in Chalk	N/A
Some inherent risk of minor spillage / leakage / spread of contaminated materials or risk of creating potential contaminant pathways.	Storing fuels in accordance with EA PPG2: Above Ground Oil Storage Tanks should mitigate the effect of spillages impacting upon	N/A
Short, medium and long term serviceability on this 'chalk-soil' dependent on foundation scheme proposed/ adopted.	Design in accordance with BS8103-1:2011, BS 8485:2007, NHBC Standards, BRE best accepted practice guidance and Building Regulations requirements	N/A
New landscape plantings associated with the development causing local shrinkage by tree root action and thus possible subsidence to existing buildings / structures, dependent on the foundation schemes to the existing building / structure and the proposed position and species of the new planting(s).	Residual low risk of short, medium and long term ground movements and effect on existing building foundations due to the presence of chalk soils.	N/A
Construction workers - Exposure to previously unforeseen contaminants.	Construction workers should be briefed on potential for encountering previously unforeseen contamination.	N/A
Future residents - Exposure to previously unforeseen contaminants.	Ground investigation to confirm presence of any significant contaminant linkages. Widespread hardstanding at the surface and clean cover system in garden areas and soft landscaping which will break direct contact pathways between any contamination and future site users.	N/A
Road/hardstanding pavement construction.	In the context of the proposed development there is a no plausible potential for the completed roads and hardstanding's to impact on ground conditions. The effects of the above activities on ground conditions would be negligible	N/A
Construction workers - Exposure to previously unforeseen contaminants.	Construction workers should be briefed on potential for encountering previously unforeseen contamination.	N/A

Appendix E: Socio-Economic and Health Effects

Table E10 – Socio-Economic and Health Effects

Potential Impact (Construction)	Mitigation/Management/Enhancement Measure(s)	Monitoring Requirements
Significant effects on population, housing, education, health and other community facilities are not expected as a result of construction, with the exception of temporary housing needs and expenditure of the construction workers.	N/A	N/A
<u>Economy and Job Creation</u> The Proposed Development of up to 3,200 dwellings has the potential to create a total of around 17,408 jobs (10,880 direct jobs and 6,528 indirect/induced jobs) over the expected development period of 15 years. With an estimated development completion date of 2041 and assuming that work will begin in 2027, up to 1,160.5 jobs per year will be created as a result of the site's construction. The geographical source of contractors who would work on the Proposed Development is unknown. However, it is likely that most of the companies would be located within the region. Indeed, most construction workers are likely to be employed from the local labour market, which would promote beneficial effects within this area. Increased spending and job creation would also be experienced by other local businesses, such as building merchants. Aside from direct construction job creation, there would be indirect effects through the supply of materials from local businesses and the expenditure of wages in the wider locality. As a result, it can be concluded that the effect of the Proposed Development on the economy at the construction stage will be Temporary in nature and of a Local to Regional scale and is assessed to have a beneficial impact.	N/A	N/A
<u>Social Infrastructure</u> Several Public Rights of Way traverse the site. Where works affect these routes, it is envisaged that the construction contract will include requirements to maintain these routes. Practical considerations may indicate that a formal application should be made to the local authorities for the temporary diversion of one or more of these routes during the construction period. Any such proposals will be subject to the standard consultation procedures outlined in legislation and will be managed by the Principal Contractor. Where works affect existing footways on the public highway, the contractor will be expected to always maintain a safe route for pedestrians.	N/A	N/A
<u>Health</u>	A Detailed Construction Environmental Management Plan will be prepared prior to commencement of any development on the site, to mitigate	N/A

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Health and safety procedures in line with industry guidelines will be established and adhered to during the construction phase and operation of services to minimise the risks of harm and injury to workers and visitors to the sites during the construction phase. During the extensive construction stage for each development, there is the risk of construction-related injuries to construction personnel and pedestrians. In terms of potential physical injuries, incidents are likely to occur in and around the Proposed Development if the site and related traffic are not adequately managed. The presence of structures like scaffolding and heavy machinery, such as cranes, in addition to increased vehicular activity, will pose an increased risk of physical injury. These risks will all be managed through measures set out in the site-wide and later detailed CEMPs. Nevertheless, a positive impact on health will be through the creation of job opportunities as a result of the construction phase, as employment increases health status, comprising social, psychological and financial benefits that improve health and well-being overall.	construction effects on the environment as well as on the amenity (and in turn health) of both existing and new residents. This will include mitigation and management measures required for dust, noise and vibration which will be included within the detailed CEMPs. Any threat to the safety and well-being of construction personnel and pedestrians can be significantly reduced so long as construction guidelines are followed. A way to ensure this would be to utilise construction companies that are willing to be accredited with the Considerate Contractors Scheme. Assuming this is followed, construction sites, companies and suppliers voluntarily register with the Scheme and agree to abide by the Code of Considerate Practice, designed to encourage best practice beyond statutory requirements. This includes protecting the environment, respecting the community, securing the safety of people on and off-site, and valuing the workforce. The assumption is that prior to development taking place, there will be a procurement of contractors who already adhere to these schemes and accreditations. During the construction phase, health and safety procedures will mitigate risks identified such as injuries to construction workers and management of construction traffic via the CTMP.	
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Appendix E: Waste

Table E11 – Waste

Potential Impact (Construction)	Mitigation/Management/Enhancement Measure(s)	Monitoring Requirements
Waste Generation Waste Categorisation Diversion of waste from landfill – inert, non-hazardous and hazardous waste	Construction waste from the Project will be managed in accordance with the principles of the waste hierarchy (i.e., avoid, reduce, reuse, recycle, recover and disposal). A Site Waste Management Plan (SWMP) will be prepared during the detailed design process and will be maintained during the construction phase to record the movement of waste from the construction areas. A Site Waste Management Plan (SWMP) will be prepared that sets out the estimated types and quantities of waste that would be generated during all phases of the Proposed Development, together with measures for how the waste will be managed. The SWMP will be based on the waste hierarchy and proximity principles for managing waste generated by the Proposed Development including targets to divert waste from landfill. All waste generated by the Proposed Development will be managed in accordance with the waste hierarchy unless it can be demonstrated that an alternative option lower down the hierarchy is the best overall environmental outcome. The measures that will be used to manage waste from the construction phase will be set out in the SWMPs and will include the measures set out below. <u>Minimisation</u> The design of the new dwellings, community facilities and commercial buildings would take into account guidance from industry body The Waste and Resources Action Programme (WRAP) to reduce the amount of waste produced: · design for reuse and recovery; · design for off-site construction; · design for materials optimisation; · design for waste efficient procurement; and · design for deconstruction and flexibility Most opportunities to minimise the amount of waste generated come from the design stage. The following design measures would be implemented where practicable: · using pre-fabricated materials for on-site assembly; · buildings/structures designed to standard dimensions of blocks or frames to avoid off-cuts; and · internal materials and fittings would be pre-cut to reduce the need for site cutting. The design of the proposed development aims to retain spoil on site, where practicable. Where spoil has to be removed from the site steps would be taken to keep the amounts to a minimum and opportunities to recycle the material in the local area would be investigated.	Monitoring of waste movements from the site. Once construction is underway, the principal contractor would complete the Waste Management Data Sheet every time waste is removed from the site and would record: · the types and quantities of waste produced; · the types and quantities of waste that have been re-used/ recycled/ recovered/ landfilled or otherwise disposed of on or off site; · the registration number of the waste carrier; · a copy of or reference to the written description of the waste; and · details of the site where the waste is taken to and its permit number.

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	A MMP would be prepared to document the management of excavated material on the site and provide the evidence needed avoid this material being deemed to be a waste. Waste would also be minimised by improving wastage rates when ordering materials. Waste allowances are generally included within material orders to take into account design waste and construction process waste. These waste allowances are often generic and not project specific and, therefore, run the risk of being inaccurate. This can lead to a surplus of materials, which typically ends up being discarded (i.e. waste). A system would be put in place to enable the accurate estimates of material requirements (and waste allowances) at the detailed design stage. On appointment of the construction team, the buyer would discuss the purchasing requirements with the site manager to identify priorities and review the quotations received. Materials would be checked against the material specifications as part of the quality control system. Where possible, hazardous materials would be substituted for less hazardous alternatives. Waste minimisation measures would be implemented by the principal contractor and site manager during construction in order to achieve the waste allowance targets. These measures include: · a logistics system which allows 'just-in-time' deliveries to minimise the length of time materials are stored on site and co-ordinate with other trades; · providing suitable and secure storage for materials where 'just-in-time' deliveries cannot be set up; · mechanical systems and machinery would be considered for moving materials to reduce the risk of damage; and · programming and monitoring construction activities to avoid overlap of incompatible trades working in the same area and to reduce the potential for waste to be generated from replacing damaged work. A target would be set for construction waste resource efficiency for the proposed buildings. This represents the amount of waste generated based on the gross internal floor area of the building. The target for the proposed development would be ≤11.1 tonnes of waste generated per 100 m² (gross internal floor area) and is in line with BREEAM New Construction Manual (BRE Global Ltd, 2018). <u>Recycling</u> Wastes generated during the construction process would be segregated into waste types to facilitate off-site recycling (for example, metals, wood, plastic). The layout of the construction site would be designed to allow sufficient space for separate containers of key waste materials to be stored within a designated waste management area. These containers would be clearly labelled, and construction staff would be given training on waste segregation. Green waste generated during site preparation works would be composted off-site at an appropriate facility. Opportunities would be investigated to retain woody material on site for landscaping and ecological planting.	
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	Where practicable, products and materials with 10% recycled content (based on the value of the materials) would be selected, taking into account cost and availability. An example of recycled content materials would be recycled aggregate and secondary aggregates for use in concrete, or granular fill. Hertfordshire County Council's Waste Core Strategy and Development Policies (2012) sets a target for the diversion of CDE waste from landfill. By tonnage, this target is: · divert a minimum of 90% of CDE waste from landfill. <u>Disposal</u> Any waste that cannot be reused, recycled, or recovered would be collected by the licensed waste management contractor and disposed of at a permitted site suitable for the type of waste. Burning of surplus material or material arising from the site construction would not be permitted. <u>Storage of Waste</u> Waste storage areas would be provided at the at the construction site. Each skip/container would be clearly marked to indicate the intended contents and would be suitable for the storage of the specified contents. All skips/containers would be covered to prevent the escape of waste by wind blow or vandalism. If liquid waste is being stored, an appropriate bund and drip pans would be in place. Storage areas would be located away from potential contaminant pathways such as drains, and excavations and trenches. Any hazardous waste would be stored safely in a designated area away from non-hazardous and inert wastes and labelled accordingly. <u>Materials Management Plan</u> A Materials Management Plan (MMP) will be prepared to demonstrate that the material excavated from the site during earthworks will not harm human health or the environment. Regulatory authorities, including the Environment Agency, will be consulted to confirm that they have no objection to the use of the CL:AIRE Definition of Waste: Code of Practice, and that any risk assessments and remedial strategies have been agreed and any associated planning conditions or requirements discharged by such bodies. The CL:AIRE MMP will relate to non-hazardous excavated material, which will include: · soil, both topsoil and subsoil, parent material and · underlying geology; ground-based infrastructure that is capable of reuse within earthworks projects (e.g. road base, · concrete floors); · made ground;	
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	· source segregated aggregate material arising from demolition activities, such as crushed brick and concrete, to be reused on the site of production within earthworks projects or as a sub-base or drainage materials; and · stockpiled excavated materials that include the above. <u>Registered Carriers</u> To meet the requirements of Section 34 of the Environmental Protection Act 1990, waste materials arising from the construction of the proposed development would only be transported by waste carriers and hazardous waste carriers holding a valid registration with the Environment Agency. Each consignment of waste removed from the construction site would be accompanied by a waste transfer note (or hazardous waste consignment note as appropriate), which correctly describes the waste using the European Waste Catalogue code, identifies the waste carrier and where the waste would be transported to. Requirements for transferring waste and registered waste carriers are set out in Part 8 and 9 of the Waste (England and Wales) Regulations 2011 (as amended). The waste would only be transferred to facilities that have the benefit of a registered waste exemption, or an environmental permit. Periodic audits would be undertaken of these facilities. <u>Records</u> Prior to construction, the types and quantity of wastes likely to be generated during the construction of buildings, structures, and other works (see above) would be set out in Waste Forecast sheets. The forecast is a useful planning tool to record the types of waste that would be generated. Targets can then be set for different waste types and entered into a Waste Estimates Data Sheet. This provides a more detailed breakdown of how the wastes would be managed (e.g. reused on site, recycled on site, recycled off site). Once construction is underway, the principal contractor would complete the Waste Management Data Sheet every time waste is removed from the site and would record: · the types and quantities of waste produced; · the types and quantities of waste that have been re-used/ recycled/ recovered/ landfilled or otherwise disposed of on or off site; · the registration number of the waste carrier; · a copy of or reference to the written description of the waste; and · details of the site where the waste is taken to and its permit number.	
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Appendix E: Lighting

Table E12 – Lighting

Potential Impact (Construction)	Mitigation/Management/Enhancement Measure(s)	Monitoring Requirements
Please see Chapter 15 – Lighting of the ES for further details. During the construction phase, there will be occasions where work extends into the hours of darkness, with the consequent need for vehicular lighting and task lighting for particular operations.	Please see Chapter 15 – Lighting of the ES for further details. Any lighting during the construction stage will be temporary in nature and will only be used during working hours. Generally, generator mounted tower floodlights will be used as when required for vehicular access to the site, pedestrian / worker circulation and any contractor compounds. Any floodlighting installed and used will be pointed into the site and away from any identified sensitive receptors.	N/A
Please see Chapter 15 – Lighting of the ES for further details. Impacts to bats during construction	Please see Chapter 15 – Lighting of the ES for further details. In order to comply with recommendations made by the Bat Conservation Trust, the following measures will be implemented in the technology used to deliver the lighting installation: ▪ Use of narrow spectrum light sources to lower the range of species affected by lighting. ▪ Use of light sources that emit minimal ultra-violet light. ▪ Lights that peak higher than 550 nm. ▪ Avoidance of white and blue wavelengths of the light spectrum to reduce insect attraction and where white light sources are installed in order to manage the blue short wavelength content they will be of a warm / neutral colour temperature >4,200 kelvin.	N/A

Appendix E: Utilities

Table E13 – Utilities

Potential Impact (Construction)	Mitigation/Management/Enhancement Measure(s)	Monitoring Requirements
Construction impact on existing utility assets: - Vegetation clearance - Topsoil stripping and stockpiling - Demolition of existing buildings - Construction compound establishment - Excavation/ground levelling to create development platforms - On-site road network construction - Foundation and building construction	Potential damage to existing utility assets can be mitigated through the use of industry standard safe digging practices and safe working procedures; including the verification of asset location through radar scans and hand dug trial excavations in compliance with Health and Safety Executive Guideline 47 (HSG47) 'Avoiding Danger from Underground Utility Services', and the use of Health and Safety Executive Guideline 6 (GS6) 'Avoiding Danger from Overhead Power Lines'. Specific site safety guidelines and working procedures will also be provided by the relevant utility asset owner where works are to be undertaken the vicinity of utility assets. The requirement for asset protection measures and/or network reconfiguration can be agreed with the relevant asset owner to mitigate the impact of off and on-site construction works on existing utility assets. These works can be included within the relevant construction programming and developed as the development progresses to detailed design stage.	N/A

Appendix E: Climate Change

Table E14 – Climate Change

Potential Impact (Construction)	Mitigation/Management/Enhancement Measure(s)	Monitoring Requirements
<i>Please refer to Chapter 17 Climate Change of the ES for further details.</i> Construction of the Proposed Development will result in the release of GHG emissions from various sources, both direct and indirect, expressed as upfront embodied carbon (Stages 1-5), including: • The manufacture of construction materials and products; • The inbound and outbound transport of construction materials and products, workers, waste, site plant and equipment; • The combustion of fossil fuels by site plant and equipment; and • The treatment of construction waste. In the absence of measures to mitigate construction-stage GHG emissions, these activities are considered to have the potential to result in a magnitude of change in GHG emissions (i.e. increase) of small relative to baseline emissions at the North Hertfordshire. In the absence of measures to mitigate construction carbon emissions, the construction of the Proposed Development could not be concluded to meet current good practice or some emerging policy for a project of its type and hence contribute appropriately to the UK's net zero 2050 trajectory.	<i>Please refer to Chapter 17 Climate Change of the ES for further details.</i> To mitigate upfront embodied carbon the Proposed Development will achieve the upfront embodied carbon targets set by U&C for the period 2026-2030 which are aligned with the description of the Proposed Development. While U&C have set embodied carbon targets for future years beyond 2030, due to potential uncertainty on phasing and delivering the set of targets for 2026-2030 have been used to provide a proportionate worst-case scenario. 'Upfront Embodied Carbon' comprises GHG emissions arising from the building's upfront stages including: materials manufacture and transport and construction and is references as Stages A1-A5 . The construction stage (i.e., materials manufacture, transport and construction) is typically the largest source of GHG emissions across a buildings lifecycle. Mitigating this element therefore significantly reduces emissions. Future detailed and Reserved Matters applications will incorporate a Life Cycle Assessment to demonstrate how each Phase will meet the targets set out above.	Monitoring requirements for the construction phase are not yet determined.

References

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British Standard 5228-1 and 2: 2009 + A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise (BS 5228-1; and Part 2: Vibration (BS 5228-2)

British Standard 6031: 2009 Code of practice for earthworks

British Standard 8103-1:2011 Structural design of low-rise buildings. Code of practice for stability, site investigation, foundations, precast concrete floors, and ground floor slabs for housing

BS 8485:2007 Code of practice for the characterization and remediation from ground gas in affected developments

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Controlled Waste (England and Wales) Regulations 2012
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(1st Edition v1.2.GB). Technical Guidance WM3 Environment Act 2021

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ES Chapter 4: Transport [DRAFT]

ES Chapter 5: Noise and Vibration [DRAFT]

ES Chapter 6: Air Quality [DRAFT]

ES Chapter 7: Landscape and Visual [DRAFT]

ES Chapter 8: Built Heritage [DRAFT]

ES Chapter 9: Archaeology [DRAFT]

ES Chapter 10: Hydrology and Flooding [DRAFT]

ES Chapter 11: Ecology [DRAFT]

ES Chapter 12: Ground Conditions [DRAFT]

ES Chapter 13: Socio-Economics and Health [DRAFT]

ES Chapter 14: Waste [DRAFT]

ES Chapter 15: Lighting [DRAFT]

ES Chapter 16: Utilities [DRAFT]

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[WRAP - The Global Environmental Action NGO - UK | WRAP - The Waste and Resources Action Programme](#)