HODKINSON

Circular Economy Statement

Bellway Homes Limited

Southern Gas Network Belvedere Holders Stations, Yarnton Way, DA17 6JP

Final

Leah Bisson
BSc (Hons), MSc

September 2023

DOCUMENT CONTROL RECORD
REPORT STATUS: FINAL

Version	Date	Reason for issue	Author	Checked by	Approved for Issue by Project Manager
v.1	18.08.23	Draft	L Bisson	Z Stebbings	Z Croft
v.2	31.08.23	Final	L Bisson	Z Stebbings	Z Croft
v.3	31.08.23	Final	L Bisson	Z Stebbings	Z Croft
v.4	13.09.23	Final	L Bisson	Z Stebbings	Z Croft

ABOUT HODKINSON CONSULTANCY

Our team of technical specialists offer advanced levels of expertise and experience to our clients. We have a wide experience of the construction and development industry and tailor teams to suit each individual project.

We are able to advise at all stages of projects from planning applications to handover.

Our emphasis is to provide innovative and cost-effective solutions that respond to increasing demands for quality and construction efficiency.

Executive Summary

The purpose of this Circular Economy Statement is to demonstrate that the proposed development at Southern Gas Network Belvedere Holders Stations in the London Borough of Bexley by Bellway Homes Limited has considered the following circular economy principles:

> Conserve resources and source ethically.

> Design to eliminate waste (and for ease of maintenance).

> Manage waste sustainably and at the highest value.

The proposed development will comprise redevelopment of the site to provide residential units including affordable housing (Use Class C3) and commercial floorspace (Class E) in new buildings ranging between 3 to 5 storeys in height, together with associated car parking and cycle storage, landscaping including new areas of public open space and a reptile retention zone, associated infrastructure including new junctions off Yarnton Way, drainage and land raising.

The commitments below have been set to ensure that changes are made at a strategic level in order to ensure that the core principles of Circular Economy are adopted. Those in **bold** are considered to be exceeding expectations.

> 100% of timber used on site, including timber used in the construction plan, will be sourced from sustainable forestry services (e.g. PEFC and FSC). All other materials will be sourced in accordance with a sustainable procurement plan.

> At least 20% of materials will include reused or recycled content by value, where feasible.

> The residential units will be designed to meet long-term resident needs, be robust, durable, and resilient to climate change.

> All residential units will be provided with access to a refuse store, supporting the separate collection of dry recyclables (mixed plastics, metals, glass, card, and paper and food waste.

> Municipal waste recycling target of 65% (residential) and 75% (commercial) by 2030.

> The site will endeavour to meet the Greater London Authority (GLA) target of 95% reuse/recycling/recovery during any demolition works.

> Monitor energy, water, and waste during construction.

> A minimum of 95% non-hazardous construction waste is to be recycled or reused.

Further different strategic approaches that can be adopted and how they could be incorporated have also been outlined in the report and will support a circular economy approach for the development.

CONTENTS

1. INTRODUCTION

1.1 This detailed Circular Economy Statement has been prepared by Hodkinson Consultancy, a specialist energy and environmental consultancy for planning and development, appointed by Bellway Homes Limited.

1.2 This Statement sets out the circular economy measures including in the proposed development at Southern Gas Network Belvedere Holders Stations in the London Borough of Bexley. The measures consider the following principles:

> Conserve resources and source ethically.

> Design to eliminate waste (and for ease of maintenance).

> Manage waste sustainably and at the highest value.

1.3 The above has been undertaken throughout RIBA stages 2/3 and this statement will be included within the full planning application that is being submitted to the London Borough of Bexley.

1.4 The aim of circular economy is to retain the value of materials and resources indefinitely, with no residual waste at all. This is possible but will require a fundamental change in the way that buildings are designed, built, operated, and deconstructed.

1.5 This report should be read in conjunction with the *GLA Circular Economy Spreadsheet* which will be submitted alongside this report.

2. DEVELOPMENT OVERVIEW

Site Location

2.1 The proposed development site at Southern Gas Network Belvedere Holders Stations in the London Borough of Bexley is shown in Figure 1 below. Please note, the eastern gas holder is now removed.

Figure 1: Site Location – Map data © 2023 Google

2.2 The existing site is largely vacant, with the exception of one remaining gasholder. The site is bounded to the north by Yarnton Way and a dual carriageway and to the south by the existing railway.

Proposed Development

2.3 The proposed development is described as follows:

"Redevelopment of the site to provide residential units including affordable housing (Use Class C3) and commercial floorspace (Class E) in new buildings ranging between 3 to 5 storeys in height, together with associated car parking and cycle storage, landscaping including new areas of public open space and a reptile retention zone, associated infrastructure including new junctions off Yarnton Way, drainage and land raising."

2.4 Figure 2 below illustrates the proposed site layout.

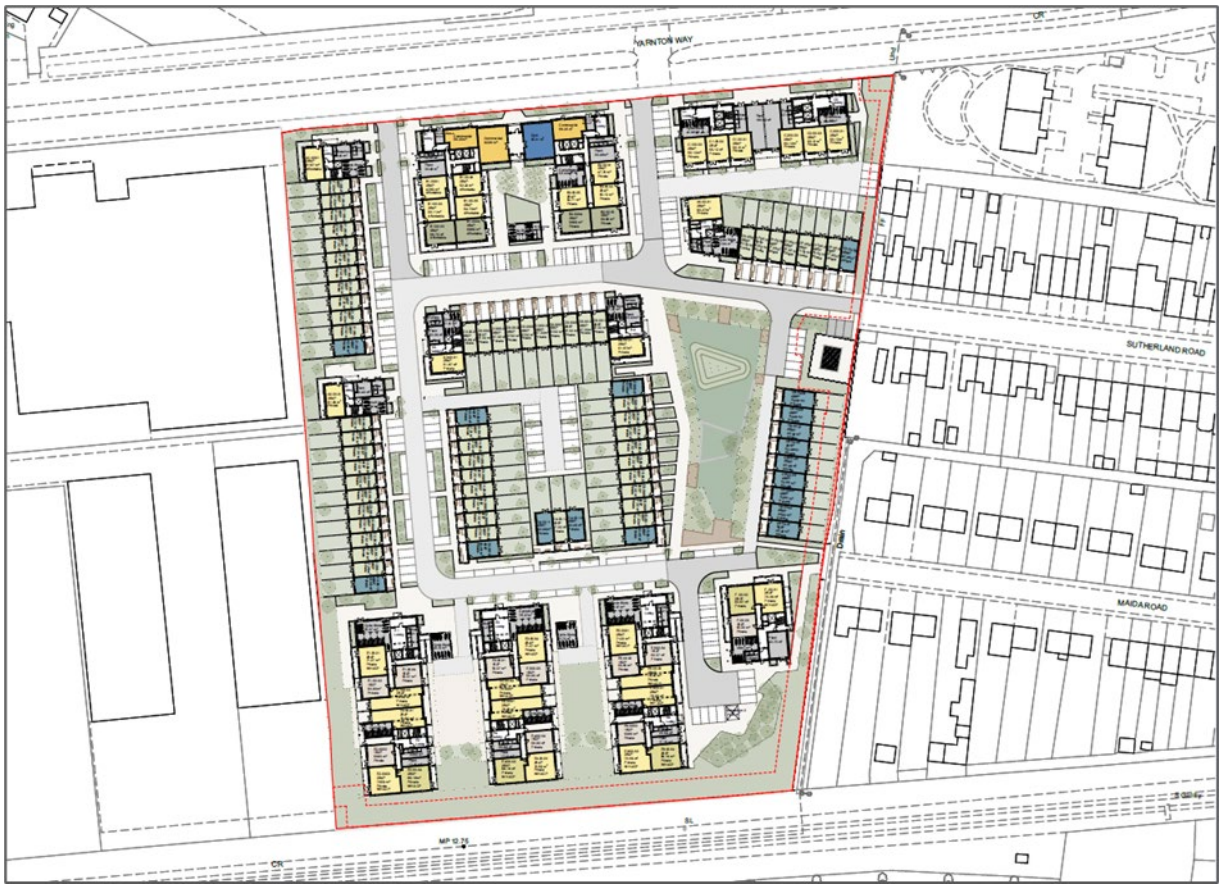


Figure 2: Proposed Site Layout – Stockwool (August, 2023)

2.5 The total Gross Internal Floor Area (GIA) for the proposed development is 30,469 m^2. The principles noted within this report apply to this GIA.

3. POLICY AND REGULATIONS

3.1 This chapter highlights the policies and regulations which are relevant to the proposed development at Southern Gas Network Belvedere Holders Stations.

Regional Policy: London Plan (2021)

3.2 The London Plan sets out an integrated economic, environmental, transport and social framework for the development of London. The following policies are considered relevant to the proposed development and this Statement:

Policy SI7 Reducing Waste and supporting the Circular Economy.

A. Waste reduction, increases in material re-use and recycling, and reductions in waste going for disposal will be achieved by:

1. Promoting a more circular economy that improves resource efficiency and innovation to keep products and materials at their highest use for as long as possible;

2. Encouraging waste minimisation and waste avoidance through the reuse of materials and using fewer resources in the production and distribution of products;

3. Designing developments with adequate and easily accessible storage space that supports the separate collection of dry recyclables (at least card, paper, mixed plastics, metals, glass, and food).

B. Referable applications should promote circular economy outcomes and aim to be net zero-waste. A Circular Economy Statement should be submitted, to demonstrate:

1. How all materials arising from demolition and remediation works will be re-used and/or recycled;

2. How the proposal's design and construction will enable building materials, components, and products to be disassembled and re-used at the end of their useful life;

3. Opportunities for managing as much waste as possible on site;

4. Adequate and easily accessible storage space to support recycling and re-use;

5. How much waste the proposal is expected to generate, and how and where the waste will be handled;

6. How performance will be monitored and reported.

Local Policy: London Borough of Bexley

3.3 The London Borough of Bexley Local Plan was adopted in April 2023. This plan sets out they key strategic planning policies and the long-term spatial vision and objectives for the borough. The following policies are considered relevant to this Statement:

3.4 **Policy DP2: Development on Backland and Infill Sites** states proposals on brownfield sites will be encouraged where the development makes a positive contribution to the area.

3.5 **Policy SP12: Sustainable Waste Management** outlines the council's commitment to:

> Encourage waste minimisation, including support for repair and reuse facilities.

> Increase the efficiency of waste sorting and recycling operations.

> Support recovery of energy from waste and diverting it from landfill.

> Implement the Waste Hierarchy and its principles.

3.6 **Policy DP26: Waste Management in New Development** requires all new developments to promote circular economy outcomes and aim to be net zero-waste. Applications should include a circular economy statement.

3.7 **Policy DP27: Minerals and Aggregates** states that all new development proposals should consider how the re-use and recycling of construction, demolition, and excavation waste materials can be maximised on-site, or if that is not possible, within London.

BREEAM

3.8 The proposed development will be assessed to target a minimum of BREEAM 'Very Good' rating under the New Construction 2018 scheme, thus representing a high level of sustainable design and construction.

3.9 Implementing a circular economy approach can support achieving the following credits:

> **Waste 01 Construction Waste Management –** Aims to reduce construction waste by encouraging reuse, recovery, and best practice waste management practices to minimise waste going to landfill. It ensures procedures are in place for sorting construction waste into waste groups. Encourages circular routes for construction waste;

> **Waste 03 Operational Waste –** Encourages the recycling of operational waste through the provision of dedicated storage facilities and space. Highlights the importance to provide sufficient

storage areas within the building to reflect the recyclable waste streams that are generated and then collected by the local waste authority;

> **Waste 05 Adaptation to Climate Change –** Encourages to take measures to mitigate the impact of extreme weather conditions arising from climate change over the lifespan of the building. Requires an assessment of structural and fabric resilience to extreme weather conditions arising from projected climate change, with mitigation where feasible. Reduces likelihood of needing to replace products and materials due to damage or poor functionality resulting from changing climate conditions;

> **Waste 06 Design for Disassembly and Adaptability –** Aims to avoid unnecessary materials use, cost and disruption arising from the need for future adaptation works as a result of changing functional demands and to maximise the ability to reclaim and reuse materials at final demolition in line with the principles of a circular economy.

Guidance Documents

3.10 Guidance has been released by the Greater London Authority "Whole Life-Cycle Carbon Assessments guidance – March 2022". It outlines how to prepare a WLCCE assessment which should accompany all referable Planning Applications in line with London Plan Policy SI 2 'Minimising Greenhouse Gas Emissions.

3.11 The guidance is accompanied by a Circular Economy template, which provides separate tabs outlining the information that should be submitted at each stage. This template has been provided as a standalone document which should be read in addition to this report.

3.12 The guidance notes that Circular Economy Statements should be submitted at three stages:

> **Outline/pre-application (RIBA Stage 1/2) -** Draft Circular Economy Statement with a focus on the strategic approach.

> **Full application (RIBA Stage 2/3) -** Detailed Circular Economy Statement outlining how the principles will be addressed through detailed design.

> **Post-completion stages (RIBA Stage 5/6)** - Post-Planning Updates should outline the progress in meeting the targets and commitment can be provided during the construction process.

3.13 As the proposed development is already at RIBA Stage 2 with a full application being submitted, a detailed Circular Economy Statement is required.

4. CIRCULAR ECONOMY PRINCIPLES

4.1 A circular economy is defined in the London Plan Policy *SI7 'Reducing Waste and Supporting the Circular Economy'* as one where materials are retained in use at their highest value for as long as possible and are then reused or recycled, leaving a minimum of residual waste.

4.2 In contrast to a linear economy (take, make, dispose), a circular economy keeps products and materials circulating through the system at their highest value for as long as possible, through re-use, recycling, refurbishment, and remanufacturing.

4.3 The end goal is to retain the value of materials and resources indefinitely, with no residual waste at all. This is possible but will require a fundamental change in the way that buildings are designed, built, operated, and deconstructed.

4.4 Applying circular economy thinking to the built environment is complex, with many overlapping issues and trade-offs to consider. However, there are some core guiding principles that promote a regenerative and restorative whole systems approach that should be applied on every project. These are as follows:

1. **Conserve resources and source ethically**

> Minimise the quantities of materials used.

> Minimise the quantities of other resources used.

> Specify and source materials and other resources responsibly and sustainably.

2. **Design to eliminate waste (and for ease of maintenance)**

> Design for longevity, adaptability or flexibility and reusability or recoverability.

> Design out construction, demolition, excavation, and municipal waste arising.

3. **Manage waste sustainably and at the highest value**

> Manage demolition waste.

> Manage excavation waste.

> Manage construction waste.

> Manage municipal waste.

4.5 Adoption of these three core principles on developments typically reduce the amount of raw and new materials required. Alongside this, a reduction in vehicle movements, air pollution, noise and greenhouse gas emissions would also be beneficial. There are also benefits from cost savings through the reduction in materials required.

5. APPROACH TO CIRCULAR ECONOMY

Strategic Design Making

5.1 The GLA Decision Tree has been used to determine the most appropriate design approach for the site. Figure 3 below highlights how the design team have progressed through the decision gates regarding the proposed development.

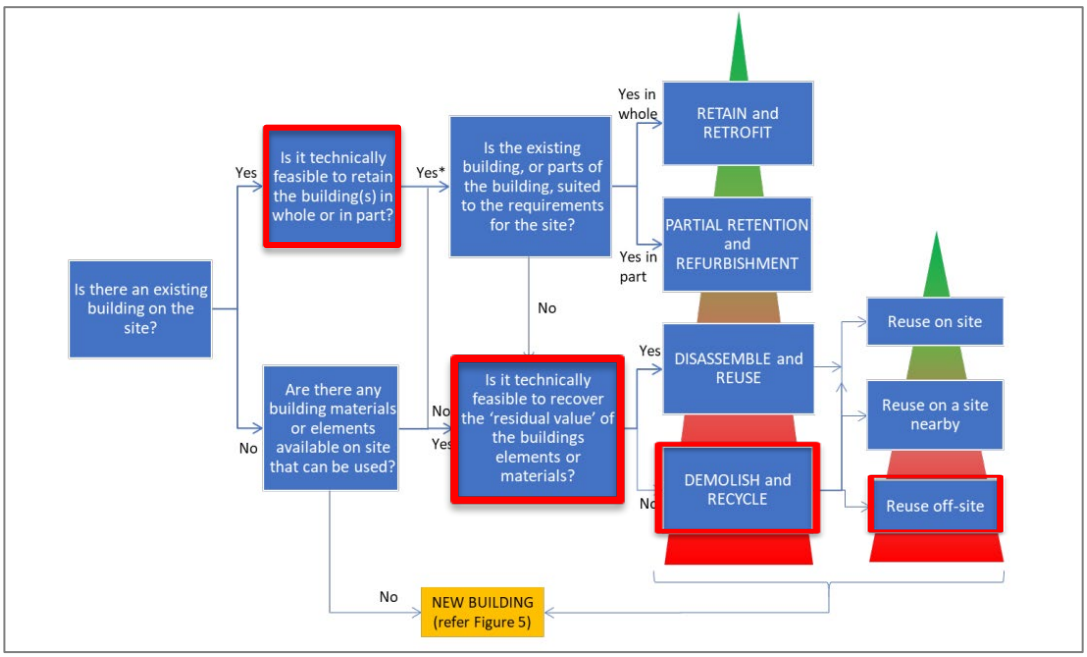


Figure 3: Decision tree for design approaches for existing structures/buildings (Circular Economy Statement guidance, GLA, March 2022)

5.2 This has determined to be a *'new building'* as confirmed in the GLA Circular Economy Spreadsheet.

5.3 The proposed development is aiming to make changes at a strategic level to ensure that the core principles of circular economy are adopted where feasible.

5.4 A rationale of the strategic approach is summarised in the GLA template submitted with this report, a more detailed overview of these is provided below.

Targets and Monitoring

5.5 Circular economy targets have been agreed with the design team and will be used to influence decisions and design as we progress through the project. These are outlined in Table 1.

5.6 An overview on how the Applicant will meet these targets is outlined in this report and in the accompanying GLA spreadsheet.

Table 1: Circular Economy Targets

Circular Economy Targets	Target aiming for (%)
Demolition waste materials (non-hazardous)	95%
Excavation waste materials	95%
Construction waste materials	95%
Municipal waste – residential (by 2030)	65%
Municipal waste – business (by 2030)	75%
Recycled content	20%

5.7 To monitor the targets, the Applicant will ensure that waste associated with the enabling works (demolition and excavation waste) and construction will be accurately recorded via a Site Waste Management Plan. Operational waste will be measured post-construction to ensure that the targets set are achieved. Finally, the recycled content will be monitored through the development of the actual Bill of Materials. More detailed information on the monitoring process is outlined below.

Method Statement

5.8 Circular economy considerations have formed a key part of the Sustainability Strategy for the proposed development. Bellway Homes Limited have developed and monitor key objectives and company targets across their construction activities to continually drive improvements in social, environmental, and economic performance. Bellway Homes Limited endeavours to build expertly

crafted homes which meet the needs of today while considering the demands of the future through a sustainable approach to build materials and the environment.

5.9 Targets set as follows:

> They will engage with their top 10 suppliers to materially reduce single use plastics in their packaging and products by 25% by 2023.

> They will aim to reduce their direct carbon emission intensity (Scope 1 & 2) from our construction operations, offices, and business mileage by 10% by 2022/23 (measured by CO_2e per home sold; 2017/18 as a base year).

> They will reduce the quantity of waste they generate (excl. ground works waste) per home built by the end of 2021 (taking 2017/18 as a base year).

5.10 They will review procurement/processes to reduce waste at all stages of supply chain.

Circular Economy Workshop

5.11 In August 2023, the design team met for a Circular Economy Workshop. The minutes of this workshop are available within **Appendix A**. Early collaboration between the key stakeholders ensured that Circular Economy Principles can be achieved and embedded in the design.

Conserve Resources

Existing Buildings

5.12 Currently, a relict gas holder, small brick buildings (including and electrical substation) and areas of hardstanding remain on site. Subsurface obstructions including footings/foundations are expected and relict structures are known to exist at the eastern boundary.

5.13 It is assumed that the remaining gasholder covers and area of 1,260 m^2. The estimated demolition volumes have been calculated. This can be found in the Site Waste Management Plan (Idom-September, 2023) in **Appendix B.**

5.14 Following the removal of the gas holder, it has been assumed at 50 m^3 of hazardous material will be generated. The concrete generated on site would be crushed and reused, where possible.

5.15 As the proposed site is primarily of residential use, the buildings on site are not fit for refurbishment.

5.16 Bellway are aspiring to use the demolished material (elements of the gas holder) on site in the proposed development. Where this is not possible, 95% recycling off site of the demolished materials will be targeted.

Sustainable Procurement

5.17 The appointed principal contractor will seek to implement a sustainable procurement plan for the proposed development. The responsible sourcing of materials will be a key consideration in the selection of suppliers and the sustainable procurement plan will support new building materials being selected to minimise environmental impact and have low embodied energy – from manufacture, transportation, and operational stages, through to eventual demolition and disposal.

5.18 Materials will be sourced in accordance with the following guidance:

> 100% of concrete will be BES 6001 certified (Responsible Sourcing of Construction Products).

> Where possible steel will be sourced from suppliers rated under the CARES Sustainable Constructional Steel Scheme.

> Other major construction materials will be certified under an Environmental Management System (EMS) such as ISO 14001.

5.19 In addition, products with a recognised environmental product declaration (EPD) will be targeted where possible.

5.20 All timber specified will be legally harvested and traded timber and should be sourced from schemes supported by the Central Point of Expertise for Timber Procurement such as Forest Stewardship Council (FSC) accreditation – which ensures that the harvest of timber and non-timber products maintains the forest's ecology and its long-term viability.

Minimised Material Use

5.21 Adopting a design approach that focuses on material resource efficiency so that less material is used in the design (e.g., lean design), and / or less waste is produced in the construction process, without compromising the design concept.

5.22 The design team will regularly review material efficiency strategies to ensure a lean design that reduces material quantities without inhibiting future flexibility. Engagement with the design team has been undertaken to address the end-of-life strategy for the material.

5.23 Site set up will consist of longitudinal temporary modular welfare cabins sized adequately for the predicted number of operatives and management on site during the enabling works, remediation and piling phases. The site welfare will then be supplemented with additional temporary modular welfare cabins to ensure that welfare requirements for the predicted number of operatives is met.

These welfare modules are not new and have been re-used on construction sites before and will be re-used on different sites once construction is complete. This re-use is facilitated by the modular nature of the welfare compounds.

5.24 Regular structural grid pattern ensures for future adaptation of the building and unique opportunities to create flexible spaces. Coupling this with long spans used throughout, the structure provides a highly adaptable and flexible space.

5.25 Measures to reduce the overall volume of concrete as much as possible is an effective way of reducing carbon. The Structural Engineers for the project have aimed to limit the use of concrete to areas in which its properties are most advantageous and have taken care to ensure that cover levels and thicknesses are minimised.

5.26 The development has also taken steps to ensure other resource use will be kept to a minimum. Examples include:

> The development will achieve a total reduction in regulated CO_2 emissions of more than 35% over the Building Regulations baseline through be lean, be clean and be green on-site measures and will provide homes that are energy efficient and incorporate Low and Zero Carbon technologies.

> All new dwellings will target a minimum internal water efficiency standard of 105 litres/person/day in accordance with the recently adopted London Plan Policy SI5 and the optional tighter Building Regulations Approved Document G requirement (110 litres/person/day).

> Built on land that is already developed which prevents the development of virgin land.

5.27 For waste reduction, minimisation of excavation, simplification and standardisation of materials and components of choice, and dimensional coordination have been considered.

Recycled Material Use

5.28 The Applicant is committed to target a benchmark of 20% reused or recycled content by value., where feasible. A brief bill of materials summary table has been provided in the GLA Circular Economy Template, submitted alongside this application. This bill of materials has been created using the inputs provided in the Whole Life Carbon Assessment (Hodkinson Consultancy, August 2023) and will need to be updated as the project progresses.

5.29 With regards to contributing towards circularity the recycled content within the construction elements will be maximised as much as possible, 20% is the current target. The list below indicates a way this target could be met:

> Reinforced steel: 97% share of recycled material in the product by mass.

> Gypsum: minimum 30% share of recycled material in the product by mass.

- Aluminium: 35% share of recycled material in the product by mass.
- Insulation: 20% share of recycled material in the product by mass.
- Ready mix concrete: Up to 5% of recycled material in the product by mass.
- Concrete, gravel and aggregates in hard landscaping: 50% share of recycled materials in the product by mass.

5.30 The monitoring of the recycled content in materials will be done throughout design by all members of the design team.

Cut and Fill

5.31 The cut and fill sequence will be reviewed in detail to maximise the re-use of material on site via treatment and distribution.

Eliminating Waste

Designing for Longevity

5.32 The proposed development will seek to design with longevity in mind. Examples include protecting materials from degradation due to environmental conditions, adopting passive design strategies to provide resilience, and sizing systems to cope with future climate scenarios.

5.33 The frame of the buildings will consist of reinforced concrete – a durable material that can be separated and recycled in its constituent parts at the end of its life. In addition, the external façade will comprise of brickwork which can also be reused and recycled at the end of its life. These materials provide a highly durable superstructure.

5.34 Appropriate durability measures will be incorporated in vulnerable parts of the internal building so as to minimise the frequency of replacing materials and therefore optimising material use. Examples of such measures include hard-wearing floor finishes and bollards and kerbs in servicing/vehicle areas.

5.35 All glazing, including external doors and windows has been designed to be made of aluminium. The use of aluminium systems ensures outstanding quality and optimal material strengths for construction, thereby ensuring mechanical robustness and excellent corrosion resistance. This ensures a long service life and makes aluminium windows, doors and façades both sustainable and circular.

5.36 The feasibility of producing an Operational and Maintenance Plan will be explored at detailed design stage. If produced, this would outline how on-site systems will be monitored and maintained during

the expected life of the development, including parties responsible for maintenance and management of the systems, onsite operations and maintenance, and resident engagement.

5.37 The residential units will be designed to meet long-term resident needs, be robust, durable, and resilient to climate change. This includes being designed for accessibility, with a variety of apartment size, catering for individuals and family living with adequate storage for buggies and wheelchairs (Part M).

5.38 Biodiverse green roofs will increase the lifespan by protecting the roofing material from direct ultra-violent radiations and extreme temperatures, resulting in less maintenance and replacement works over the long-term life of the roofing system. Well maintained green roofs can more than double the lifespan of the roof.

5.39 Various energy saving sustainable initiatives will be included in the design, such as high insulated external fabric and walls, and low- energy lighting throughout.

Design for offsite construction/modular

5.40 The benefits of offsite factory production in the construction industry are well documented and include the potential to considerably reduce waste especially when factory manufactured elements and components are used extensively.

5.41 Although there are limited opportunities for off-site construction and/or modular elements, where practicable and feasible, offsite construction and manufacturing will be considered for the proposed development.

5.42 Off-site constructed and pre-fabricated elements that may be considered, where relevant, include bathroom pods, mechanical and electrical rises, and packaged plant rooms.

Designing for Assembly, Disassembly and Recoverability

5.43 A materials inventory will be created for the entire building that includes a detailed breakdown of all building elements that sets out the constituents of each product and material, the structural loadings, and the ability for each material to be reused and/or recycled.

5.44 The proposed development will be designed with disassemble in mind as well as maintenance and replacement of elements. All assets will seek to be designed to allow for easy assemble and reconfiguration where feasible, for alternative uses, for example, the design of interior systems for disassembly.

5.45 Both cycle and vehicle parking have been designed to allow for future changes in provision, with sufficient space provided to allow for these to be increased in future if required.

5.46 A brief end-of-life strategy will be developed at detailed design to demonstrate how the building materials, components, and products could be disassembled and reused at the end of their useful life.

Designing for Adaptability or Flexibility

5.47 To avoid unnecessary material use, cost and disruption arising from the need for future adaptation works the designs will look to incorporate functional adaptability. These changes could be required as a result of changing functional demands and to maximise the ability to reclaim and reuse materials at final demolition in line with the principles of a Circular Economy.

5.48 The non-residential space of the development has been designed with flexibility in mind. The proposed size of each unit is designed to be less than 100m^2, however should an alternative arrangement be preferred, units can be provided in different configurations. Alternatively, the spaces can be subdivided into smaller units, creating flexibility to accommodate cellular working or small individual lets/units. This is shown in **Appendix C**.

5.49 Infrastructure and hard landscaping are typically less adaptable than other elements of the built environment. At present a resilient hard landscaping design has been designed which enables servicing and maintainability. The detailed design of the site layout should include opportunities to make it adaptable, this could include the use of moveable planters and limiting the use of adhesives and fixings.

5.50 The proposed development has also incorporated the following adaptability measures:

> It will be possible to remove and replace all major items of plant within the building without needed to demolish sections of wall or floor. Lifting beams and hoists will be incorporated into the design where necessary.

> The partitions have been designed as lightweight and can be removed in future if there is a requirement for a change in layout or function to this area. The building services design has also been designed to account for this potential change future use.

> The site features a large range of dwelling types, with various internal layouts, bedroom numbers, and tenure types, including the provision of affordable housing. As per the policy in providing more housing within the Borough, the tenure design ensures that the community needs are met, and the range of housing provided allows for future flexibility.

Lean Design

5.51 Throughout the design stages, considerations have continually been made with regard to improving the design while considering circular economy principles.

5.52 The design evolution has progressed to reduce the overall height of the buildings to a maximum of 5 storeys.

5.53 As the design progresses, consideration will be given to maximising the efficiency of the structural elements which can reduce the overall thickness of the concrete ground and upper floor slabs.

Standardisation

5.54 The proposed development will consider designing and construction methods by applying, where feasible, standardised elements for materials and products that enable a reduction in construction waste and easier reuse in next life.

5.55 The development will aim to use standardised design formats to enable future reuse, e.g., no bespoke cutting of materials as this can make replacements difficult to obtain.

Managing Waste

Site Waste Management

5.56 Prior to any Enabling works beginning on site, a detailed Project Waste Management Plan will be drafted. The plan will include details on waste minimisation strategies incorporated in design and procurement stages. It will also include information on how waste will be managed during the construction phase, along with predictions for various waste streams. A draft of this plan has been provided in **Appendix D**.

5.57 The location of the waste handling site that materials will be taken to, will vary dependent upon their specific make up, of which is yet to be confirmed (on appointment of Principal Contractor). Notification of the likely destination of all waste streams (incl. beyond the Materials Recycling Facility) will be provided, including confirmation that the destination landfill(s) has/have the capacity to receive waste.

5.58 Waste facility sites in the London Borough of Bexley may be used amongst others as appropriate. Wherever possible, materials will be recycled and re-used either onsite, or provided for use elsewhere. Waste segregation will take place during construction as far as the site allows logistically to give the highest possible recycling rates.

5.59 A strategy will be put in place to minimise the space taken by storage of new materials. Frequently used items will be placed in easy to access areas. This will increase efficiency and minimise wastage due to damage. Prolonged storage of materials on site will be avoided, where possible, and implementation of ‘just in time’ deliveries will be encouraged.

5.60 As part of their commitment to divert construction waste from landfill, Bellway Homes Limited will be required to regularly monitor and record the site's waste reduction performance. This will be compared against a target benchmark where at least 95% (by volume) of non-hazardous construction and demolition waste is to be reused or recycled. A benchmark of 95% for potential excavation waste put to beneficial use will also be set.

5.61 The energy and water consumptions of the project will be monitored, either through sub-metering or reading utility bills, to allow comparison against best practice benchmarks and improvements made.

Construction Waste Monitoring

5.62 The applicant is committed to reducing construction waste from landfill and they will be required to regularly monitor and record the site's waste reduction performance. A weekly progress report will be produced once construction works begin and will contain data for waste movements. This will be assembled by senior contract managers who shall review the previous week's activity during report compilation.

5.63 The Proposed Development has a BREEAM 'Very Good' target, with an aim to achieve one Waste 01 credits. Through targeting Wst 01 credits the scheme will aspire to a high level of construction waste efficiency (<11.1 tonnes/m^2 GIFA). Workshops at RIBA Stage 3 and 4 will track the development of potential waste opportunities and identify additional measures to ensure these targets are met.

Operational Waste

5.64 Waste reduction during the operational phase is also being considered for opportunities in implementing waste mitigation measures for the potential impacts arising during the operation of the development to ensure that such measures are consistent with both national and local waste policies and targets.

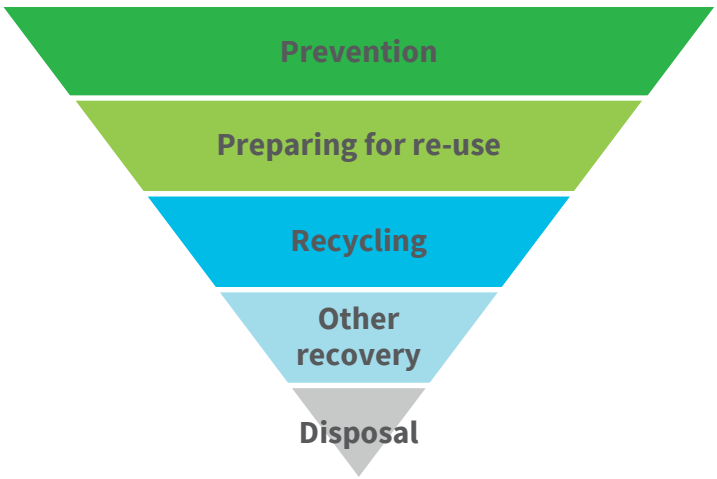


Figure 4: Waste Hierarchy

5.65 The Waste Hierarchy strategy in accordance with the London Plan will be used to ensure that waste is reduced or reused prior to being put out for recycling or refuse collection. The waste hierarchy, as shown in Figure 4 above, establishes waste management options according to what is best for the environment. It places great importance on preventing waste in the first place. When waste is created it prioritises preparing if for re-use, then recycling, recovery and lastly disposal (e.g., landfill).

Waste Arising & Storage

5.66 An Operational Waste Management Strategy was produced by Ardent Consulting Engineers (August, 2023). This outlines how waste will be managed in operation and has been provided in **Appendix E.**

5.67 The waste store will be clearly labelled to ensure accurate segregation of refuse, mixed recycling, and food waste.

5.68 Bins for the apartment blocks will be collected from the internal bin stores with the refuse vehicle parking generally within 10 metres of the stores. For the houses, bins will be dragged by residents from the secure area at the front of the property close to the edge of the carriageway for the refuse workings to collect the bins with minimal distances.

5.69 Each house will be provided with the following waste bins:

> 1 x 180 litre green wheeled bin – waste which cannot be recycled;

> 1 x 180 litres green wheeled with a blue lid – for paper and cardboard waste;

> 1 x 240 litre green wheeled bin with a wite lid – for plastic, tins, cans, and glass waste; and

> 1 x 23 litre brown food waste box with 10 litre kitchen caddy to provide storage in the kitchen.

5.70 For the apartments and non-residential aspects of the site, LBB's rubbish and recycling policies outlines the bin sizes which are available for these uses but does not specify the exact number and

type which should be provided. These bins will be located within shared waste storage facilities for each block. The bin sizes available are as follows:

> 1,110 litre Eurobins; and

> 1,280 litres Eurobins.

5.71 To calculate the number of bins required for each apartment block, the BS 5906:2005 guidance was used to estimate the amount of weekly recyclable and residual waste for each block.

5.72 For more detailed information on the operational waste strategy, the strategy in Appendix E should be referred to.

Operational Waste Monitoring

5.73 The development is committed to meet the Mayor's 65% target for municipal waste (residential) recycling by 2030 and will strive to ensure no biodegradable or recyclable waste is sent to landfill by 2026, once the proposed development, is operational. The development will also meet the Mayor's 75% target for municipal waste (commercial) recycling by 2030.

5.74 Waste monitoring will consist of the collection of waste reporting data by Facilities Management, such as the volumes of various waste streams and tracking of the percentage of waste recycled. This information will be used to monitor progress towards achieving waste avoidance targets.

5.75 New residents and property occupants will be encouraged to reduce and prevent waste through good practice measures such as providing information packs to residents about how the waste segregation and recycling scheme operates. The information will also include details on waste prevention schemes within the London Borough of Bexley such as:

> **Love Food Hate Waste** – aims to raise awareness of the need to reduce food waste and ways to take action;

> **Community RePaint** – UK wide paint reuse network that aims to collect leftover paint and redistribute it to benefit individuals, families, charities and communities in need at an affordable cost;

> **Bexley Council Reuse and Recycling Centres** - Reuse and recycling centres allow residents to dispose of a wide range of reusable and recyclable items for free; and,

> **Freecycle Network; and Freegle** – are networks that aims to increase reuse and reduce landfill by offering a free online based service where people can give away and ask for things that would otherwise be thrown away.

> **Bexley Green Points** – a recycling initiative programme that rewards Bexley residents for reducing what they throw away and recycling more.

Recycling Waste Reporting Form

5.76 The recycling and waste metrics reporting will be provided by the main contractor, once appointed. This will be agreed with the project manager and a site waste management plan, which will contain improved estimates for figures shown in Table 2.

Table 2: Recycling and Waste Reporting – Construction and Municipal Waste

		Excavation Waste	Demolition Waste	Construction Waste	Municipal Waste
Total Estimate (t/m^2 GIA)		TBC	0.272	0.111	0.010
% Reused on or off site		>95%	>95%	>95%	>65% - residential > 75% - commercial
% Recycled or composted, on or off site					
% not reused or recycled	**% to landfill**	0	Max 5%	Max 5%	Max 35% and no recyclable or compostable waste
	% to other management (e.g. incineration)	0	Max 5%	Max 5%	

Plans for Implementation

5.77 Considerations for circular economy implementation will be required through active engagement with key stakeholders at each stage, of which include (but not limited to):

> Principal Contractor and Sub-contractors (when appointed).

> Project Architect.

> Structural Engineers.

> Transport Consultants; and

> Client.

5.78 A brief plan of implementation (short, medium, and long term) and action list has been compiled. Key actions of which included:

- Review and confirm the decision to use GGBS and reinforced concrete frames with 97% recycled steel as sustainable materials.
- Review how the 20% recycled content of material can be monitored through construction to ensure compliance.
- Further consider how flexibility and adaptability can be considered in the design process. The leisure centre has proposed a lightweight partition to facilitate the change in layout and flexible building services.

5.79 Such requirements, along with the projects strategic approach to implementing circular economy principles, will be included in tendering specifications to contractors, ensuring responsibilities in line with these aspirations are embedded from the earliest opportunity.

5.80 Waste is a key performance indicator included in project performance dashboards, allowing for the ongoing monitoring of construction waste by site managers. This will help to ensure that construction waste targets are met.

5.81 Maintenance of all plant items will need to be implemented utilising the appropriate equipment and platforms, by appropriately trained engineers in accordance with relevant regulations. Prior to any of these tasks being implemented, method statements and risk assessments will need to be produced and issued to the building management team.

5.82 Bellway Homes Limited will be required to continue the work done by the design team to identify and provide solutions on key challenges with material use with the aim to reduce this even further.

5.83 It is proposed the following actions are taken to implement and monitor the actions included in this Circular Economy Statement:

- Ensure a detailed SWMP is populated with the targets and actual waste data.
- Provide an updated bill of materials.
- Update recycling and waste forms.
- Provide cut and fill calculations.
- Provide reused or recycled content calculations.
- Undertake scenario modelling and lean design options appraisal.
- Undertake a lesson learned workshop at the end of the project.

End of Life Strategy

5.84 Although the proposed development is still at an early design phase, engagement with the design team has been undertaken to address the end-of-life strategy for the building materials and components.

5.85 Once the design is progressed and develops to specify exact materials and products, the end-of-life scenarios for the building will become more detailed as a result. The main aim is to extend the lifetime of the building through careful design and specification through the measures listed herein.

5.86 Where individual elements have shorter design life periods, the development seeks to design for the repurpose and independent replacement of these individual elements.

5.87 Exact materials and products will be selected and designed to allow for disassembly and reuse at the end of their useful life.

5.88 Building Information will be stored for the entire duration of the building's lifetime to facilitate end of life strategy, disassembly, future reuse, waste avoidance, and waste reduction. The material specification and manufacturers data sheets will be stored and updated as and when additional works are undertaken. This information can be used towards the end of life to inform the end of life strategy, disassembly, future reuse, waste avoidance, waste reduction

5.89 Bellway Homes Limited will also be required to produce a disassembly manual that provides guidance on which materials, elements or components can be reused, recycled, or composted. Where possible, the disassembly manual will include a Building Information Model (BIM) to ensure information can be easily accessible and updated where relevant. The manual will act as a guide for disassembly for those elements that have been designed to be disassembled at the end of their life within the building which will also enable BREEAM credits to be obtained for the buildings.

5.90 The project has been assessed on the assumption of a 60 year design life, at which point material reuse and recycling technologies are expected to be more advanced than today.

5.91 Assumptions made with respect to maintenance, repair and replacement cycles and the material ''end of life'' scenarios have been included within the GLA Spreadsheet that accompanies the Whole Life Cycle Carbon assessment (Hodkinson Consultancy- August 2023).

6. CONCLUSION

6.1 This detailed Circular Economy Statement has been prepared by Hodkinson Consultancy, a specialist energy and environmental consultancy for planning and development, appointed by Bellway Homes Limited. It has been produced for the proposed development at Southern Gas Network Belvedere Holders Stations located in the London Borough of Bexley.

6.2 The aim of circular economy is to retain the value of materials and resources indefinitely, with no residual waste at all. This is possible but will require a fundamental change in the way that buildings are designed, built, operated, and deconstructed. The following measures have been considered:

> Conserve resources and source ethically.

> Design to eliminate waste (and for ease of maintenance).

> Manage waste sustainably and at the highest value.

6.3 The above has been undertaken throughout RIBA stages 2/3 and this statement will be included within the full planning application that is being submitted to the London Borough of Bexley.

6.4 This report should be read in conjunction with the *GLA Circular Economy Spreadsheet* which will be submitted alongside this report.

6.5 A series of targets have been proposed in this Circular Economy Statement, identifying and applying these approaches during concept design will enable them to be incorporated as part of the development brief and will help facilitate a circular economy approach.

6.6 A Post Construction Completion Report is to be provided at project completion. This will seek to set out the predicted and actual performance against all numerical targets and provide updated versions of the items noted in this report.

APPENDICES

Appendix A
Circular Economy Workshop

Appendix B
Site Waste Management Plan

Appendix C
Flexible Design

Appendix D
Project Waste Management Plan

Appendix E
Operational Waste Management Strategy

Appendix A
Circular Economy Workshop

CIRCULAR ECONOMY WORKSHOP

Attendance:

Representatives from the following companies attended the meeting on the 22nd August 2023:

- Michael Olapoju- Bellway Homes Limited
- Nasser Faroq- Bellway Homes Limited
- Leah Bisson- Hodkinson Consultancy
- Matthew Bailey- Hodkinson Consultancy

Circular Economy Notes:

Pre-redevelopment and Pre-Demolition Audit

Discussed the existing structure on site- site is currently occupied by a single gasholder. Pre-development audit not required.

Demolition of the existing gasholder is to occur. A pre-demolition audit will need to be undertaken. NF discussed that an audit can be undertaken to provide quantities.

Use of reused and recycled materials

In reaching the 20% use of reused or recycled content (by value), the following measures were discussed:

- 97% recycled steel will be used on site.
- Up to 5% recycled binders in concrete will be explored.
- 30% of mass of gypsum plasterboard will be recycled content.
- 20% share of recycled material in the product by mass.

Adaptability and Flexibility

To promote future adaptability of the structure, and flexibility of the internal space, the following aspects have been considered at present, as well as potential opportunities:

- Adaptability of the commercial space. Units can be subdivided and spit out to suit a number of commercial uses.

Waste Management

An Operational Waste Management Plan has been produced and will ensure that waste is managed sustainably with sufficient capacity for recycling.

Appendix B

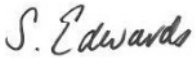
Site Waste Management Plan

SITE WASTE MANAGEMENT PLAN
SGN BELVEDERE
BELVEDERE, LONDON
BELLWAY HOMES LIMITED (LONDON PARTNERSHIPS)
SWMP-21912H-23-371
SEPTEMBER 2023

SITE WASTE MANAGEMENT PLAN
SGN BELVEDERE
BELVEDERE, LONDON
BELLWAY HOMES LIMITED (LONDON PARTNERSHIPS)
SWMP-21912H-23-371
SEPTEMBER 2023

Document Issue Record

Status	Final	Date of Issue	07/09/2023

Prepared by		Approved by	
Nathan Dellow	MCIWEM, MIEnvSc, CEnv	Simon Edwards	CPhys, MInst P AMIOA, FRMetS
			

Rev	Prepared	Approved	Date of Issue	Reason(s) for Revision

TABLE OF CONTENTS

SECTION 1 INTRODUCTION

1.1 Bellway Homes Limited (London Partnerships) proposes to redevelop an area of land located at Sunderland Road, Belvedere, London for residential development purposes. The proposed development comprises:

i. 392 residential units and commercial space; and

ii. Landscaping (private & communal) and associated infrastructure.

1.2 The site is located at the former SGN Gas Holder Station, off Yarnton Way, Belvedere, DA18 4AR. The site occupies an area of approximately 3.49 hectares located at National Grid Reference 549225 179312 and indicated on appended drawing.

1.3 The site is bound by Yarnton Way to the north (with commercial premises beyond), residential properties to the east, a railway line to the south (with residential and commercial premises beyond) and commercial premises to the west (Allied Hygiene Systems and Yusen Logistics (UK).

1.4 IDOM Merebrook Limited (IDOM) was commissioned by Bellway Homes Limited (London Partnerships) to undertake a non-intrusive, desk-based assessment of the site and to advise on the geo-environmental implications of the redevelopment of the site for the proposed end use.

1.5 IDOM was retained by Bellway Homes Limited (London Partnerships) to produce a Site Waste Management Plan to support the planning application of the residential development. This report covers the construction phase only.

1.6 This report has been prepared for Bellway Homes Limited (London Partnerships) for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should consult Bellway Homes Limited (London Partnerships) and IDOM as to the extent to which the findings may be appropriate for their use.

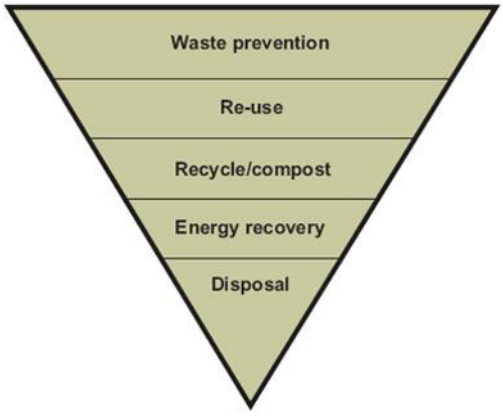
SECTION 2 INTRODUCTION TO WASTE

2.1 This report considers the key planning policies and methods used to assess the effects of waste in the context of the construction phase of the proposed development. A review has been undertaken based upon current operational waste generated by the London Borough of Bexley for municipal waste and waste capacity. The potential effects of the proposed development are discussed, together with an assessment of the residual effects following mitigation measures to prevent/minimise waste generation and divert waste from disposal to landfill as far as possible by recycling and re-use.

2.2 For the purposes of this assessment, 'waste' is defined as: "any substance or object which the holder discards or intends or is required to discard", as specified in the revised Waste Framework Directive.

2.3 The revised Waste Framework Directive introduces a changed hierarchy of options for managing wastes. It gives top priority to preventing waste in the first place. When waste is created, it gives priority to preparing it for re-use, then recycling, then other recovery such as energy recovery, and last of all disposal (for example landfill). The Waste (England and Wales) Regulations 2011 apply the requirements for the waste hierarchy, detailed in Figure 1 below:

Figure 1 The Waste Hierarchy



(source: Department for Environment, Food and Rural Affairs (DEFRA))

2.4 Supplementary to the waste hierarchy, the proximity principle advocates that waste should be disposed of (or otherwise managed) close to the point at which it is generated, thus aiming to achieve responsible self-sufficiency at a regional or sub-regional level. Where this is not possible, priority should be given to transportation by rail or water.

2.5 As part of this assessment, a review of applicable international, national, regional and local legislation and policy has been undertaken.

2.6 If waste is not managed properly during its handling, storage, transport, treatment and disposal, this can result in pollution of the environment and can impact upon human health. Hence, this document aims to ensure that all waste management measures to be employed protect both the environment and people, and comply with UK legislation.

2.7 The intention is to ensure the philosophies of the waste hierarchy and proximity principle are applied during the redevelopment of the site, with waste generation during the demolition, construction and operational phases minimised as far as possible, and where waste is generated, that it is re-used or ultimately disposed of in the most sustainable manner.

SECTION 3 WASTE LEGISLATION

3.1 PLANNING POLICY AND LEGISLATION CONTEXT SUMMARY

3.1.1 Introduction

3.1.1.1 This section outlines the key international, UK, national, regional and local wastes policies, guidance and legislation.

3.1.1.2 Following the result of the Brexit referendum in 2016 the future direction of UK planning policy is uncertain. In the short term, Brexit seems unlikely to have a major impact on policy. However, in the longer term, it is unclear what the release from the constraints of EU policy will mean.

3.1.2 International legislation

3.1.2.1 **EU revised Waste Framework Directive (2008/98/EC)** - This revised Directive provides the overarching legislative framework for the collection, transport, recovery and disposal of waste, and includes a common definition of waste. It encourages the prevention and reduction of harmful waste by requiring that Member States have control regimes in place.

3.1.2.2 **EC Landfill Directive (1999/31/EC)** - This directive aims to prevent, or reduce as far as possible, negative effects on the environment from the landfilling of waste.

3.1.2.3 **EC Industrial Emissions Directive (2010/75/EU)** – replaced the EC Directive on the Incineration of Waste (2000/76/EC) and commits EU member states to control and reduce the impact of industrial emissions on the environment. The Industrial Emissions Directive is implemented through the Environmental Permitting Regulations (SI 2013/390) in England and Wales.

3.1.2.4 **EC Directive on Integrated Pollution Prevention Control (2008/1/EC)** - This directive encouraged minimising pollution from various industrial sources throughout the EU. Operators of industrial installations undertaking activities covered by Annex I of the IPPC Directive are required to obtain an environmental permit from the

authorities in the EU countries. Directive 2008/1/EC has been repealed and replaced by the EC Directive 2010/75/EU on industrial emissions.

3.1.2.5 **Road Map to a Resource Efficient Europe** – This communication was published in September 2011 and adds to the EU policy framework seeking to achieve more sustainable use of resources.

3.1.3 UK and National Arrangements

3.1.3.1 The Environment Agency (EA) is the competent authority responsible for the enforcement of waste management controls in England and Wales, while the Department of Environment, Food and Rural Affairs (DEFRA) is responsible for recycling policy and waste regulations. Relevant UK and national waste legislation is outlined below:

3.1.3.2 **The Environmental Protection Act 1990 (S33)** - This act addresses areas of significant environmental concern including waste disposal. Waste Management issues are considered under Part II of the EPA. Controlled waste includes commercial, industrial (including agricultural waste from 2006) and household waste. Under the Act, the deposition of waste to land without a licence or breaching licence conditions is an offence. The Act is also designed to prevent environmental pollution or harm to human health by prohibiting treatment, storage and disposal of controlled wastes without a licence or in breach of a licence.

3.1.3.3 **Waste and Emissions Trading Act 2003 (Amendment etc.) Regulations 2013** - These Regulations amend Chapter 1 of Part 1 of the Waste and Emissions Trading Act 2003 ("the 2003 Act") regarding the Secretary of State's functions in England and revoke the Landfill Allowances and Trading Scheme (England) Regulations 2004 (S.I. 2004/3212). This brings the Landfill Allowances Trading Scheme to an end in England. Regulation 4 sets out obligations for waste disposal authorities in England to keep records and make returns to the Environment Agency in respect of local authority collected municipal waste.

3.1.3.4 **The Waste (England and Wales) Regulations 2012** – These regulations transpose the revised Waste Framework Directive into law in England and Wales.

3.1.3.5 **Environmental Permitting (England and Wales) Regulations (2016)** - These regulations introduced a streamlined system of environmental permitting in England and Wales for certain installations, waste operations and mobile plants. Activities under these regimes will be covered by a single form of environmental permit governed by one set of regulations. This provides a system for environmental permits and exemptions for industrial activities, mobile plant, waste operations, mining waste operations, water discharge activities, groundwater activities and radioactive substances. It also sets out the powers, functions and duties of the regulators. Notably, the requirements of the Landfill Directive and Waste Management Licensing are applied under these regulations.

3.1.3.6 **The Control of Pollution (Amendment) Act 1989** requires carriers of controlled waste to register with the EA and outlines the penalties (including seizure and disposal) for vehicles shown to have been used for illegal waste disposal, and the **Controlled Waste (England and Wales) Regulations 2012 (SI 811)** defines household, industrial and commercial waste for waste management licensing purposes.

3.1.3.7 **The Waste Management Licensing Regulations (1994 and amendments)** introduce requirements to ensure the technical competence of persons operating waste management facilities.

3.1.3.8 **The Site Waste Management Plans Regulations 2013 (SI 314)** aimed to make the construction industry more sustainable by ensuring that those responsible for development projects are aware of the waste being produced, so that it can be reduced. These regulations made it an offence to fail to prepare and implement a site waste management plan (SWMP) for certain construction projects that have an estimated cost of more than £300,000 (excluding VAT). Additional requirements were described in the Schedule for projects over £500,000. Under the Government's 'Red Tape Challenge' to reduce the regulatory burden to businesses, these regulations were repealed with effect from 1 December 2013, however, it is anticipated that many sites will maintain the use of SWMPs as a method of managing wastes.

3.1.3.9 **The Landfill (England and Wales) Regulations 2002** require a reduction of biodegradable waste sent to landfill. These regulations implement the Landfill Directive, which aim to prevent, or reduce as far as possible, negative effects on the environment from the landfilling of waste. New definitions for hazardous waste and non-hazardous waste are given by the Hazardous Waste (England and Wales) Regulations 2005 (SI 2005/894). Overall, the regulations aim to track and control hazardous waste movements. A consignment note is required prior to the removal of any waste. Notably, a waste producer who produces over 500 kg of hazardous waste a year must notify the Environment Agency.

3.1.3.10 **Contaminated Land (England) Regulations 2006 (SI 1380)** - These regulations set out provisions relating to the identification and remediation of contaminated land. It also determines sites which require regulation as special sites and adds land contaminated by radioactive substances to this classification (amended by The Contaminated Land (England) (Amendment) Regulations 2012).

3.1.3.11 **The Waste (Circular Economy) Regulations 2020** – These regulations are designed to prevent the generation of waste and to monitor and assess the implementation of these measures. Waste collection authorities are not required to ensure that wastepaper, metal, plastic or glass are collected separately if doing so does not deliver the best environmental outcome, is not technically feasible or would involve disproportionate economic costs.

3.1.3.12 The Regulations amend the following:

i. Environmental Protection Act 1990, Part 2 (waste on land);

ii. End-of-Life Vehicles Regulations 2003;

iii. Hazardous Waste (England and Wales) Regulations 2005;

iv. Waste Electrical and Electronic Equipment Regulations 2013;

v. Environmental Permitting (England and Wales) Regulations 2016; and

vi. Waste (England and Wales) Regulations 2011.

3.1.3.13 **Environment Act 2021** – The act requires the Secretary of State to set long-term legally binding environmental targets in four areas, one of which is resource efficiency and waste reduction. The major waste reforms set out in the Act will support the achievement of a 65% recycling target for municipal waste by 2035.

3.1.4 Producer Responsibility

3.1.4.1 **The Environment Act 1995 (Waste and Producer Responsibility, S92 / S93-99)** – This act requires provisions of appropriate waste disposal technologies and the prevention or reduction of waste through reuse, recycling and the use of waste as an energy source.

3.1.4.2 **The Producer Responsibility Obligations (Packaging Waste) Regulations 2007 (S1 2007/871)** - These regulations revoke and replace the Producer Responsibility Obligations (Packaging Waste) Regulations 2005, adding a new key definition for small producers (a producer that has a turnover of between £2-5 million). The regulations only apply to businesses that handle more than 50 tonnes of packaging / packaging materials a year. A producer may demonstrate their compliance with the regulations by obtaining Packaging Waste Recovery Notes (PRNs) and / or Packaging Waste Export Recovery Notes.

3.1.5 Waste Streams

3.1.5.1 **The Waste Electrical and Electronic Equipment (WEEE) Regulations 2006 (SI 2006/3289 and amendments)** - The regulations aim to reduce the volume of WEEE waste being taken to Landfill sites by allowing separate collection, recovery, treatment, recycling and safe disposal of the waste. Producers of EEE will be responsible for financing and ensuring WEEE is treated at an authorised facility. The producers and distributors of EEE are also required to make sure household WEEE products can be returned free of charge and treated in an appropriate way.

3.1.5.2 **Waste Batteries and Accumulators Regulations 2009 (SI 1890)** - These regulations set out requirements for waste battery collection, treatment, recycling and disposal for all battery types.

3.1.5.3 **Control of Pollution (Oil Storage) (England) Regulations (2001) SI 2954** –These regulations impose general requirements for preventing the pollution of controlled waters from oil storage, in particular from fixed tanks or mobile bowsers.

3.1.6 Overarching Strategies and Policies

3.1.6.1 **DEFRAs Resources and Waste Strategy 2018** - The Strategy sets out how the country will preserve material resources by minimising waste, promoting resource efficiency and moving towards a circular economy.

3.1.6.2 **25 Year Environment Plan 2018** - The government's 25 year Plan includes a commitment to minimise waste. The document states the following.

i. working to minimise waste, reuse materials as much as we can and manage materials at the end of their life to minimise the impact on the environment. We will do this by:

ii. working towards our ambition of zero avoidable waste by 2050;

iii. working to a target of eliminating avoidable plastic waste by end of 2042;

iv. meeting all existing waste targets – including those on landfill, reuse and recycling – and developing ambitious new future targets and milestones;

v. seeking to eliminate waste crime and illegal waste sites over the lifetime of this Plan, prioritising those of highest risk. Delivering a substantial reduction in litter and littering behaviour; and

vi. significantly reducing and where possible preventing all kinds of marine plastic pollution – in particular material that came originally from land.

3.1.6.3 **The Waste Strategy for England 2013** - This national strategy for waste sets out the government's views on waste management in England. The strategy commits to setting new national targets for the reduction of household waste through recycling and composting by at least 50% by 2020, in comparison to 2000 levels. In addition, new national targets are expected for the reduction of commercial /industrial waste going to landfill. Key objectives were stated as follows:

i. Decoupling waste growth from economic growth with more emphasis on waste prevention and re-use;

ii. Meeting and exceeding the Landfill Directive diversion targets for biodegradable municipal waste;

iii. Increasing diversion from landfill and securing better integration of treatment for municipal and non-municipal waste;

iv. Securing the investment in infrastructure needed to divert waste from landfill and for the management of hazardous waste; and

v. Getting the most environmental benefit from that investment, through increased recycling of resources and recovery of energy from residential waste using a mix of technologies.

3.1.6.4 **Government Review of Waste Policy in England 2011** – This sets out 13 principal commitments, with steps towards a zero waste economy. It prioritises efforts to manage waste in line with the waste hierarchy with key importance given to waste prevention, and to reduce the carbon impact of waste.

3.1.6.5 **Strategy for Sustainable Construction 2008** - The Strategy for Sustainable Construction aimed to deliver the policies set out in the UK's Sustainable Development Strategy. A joint industry and government initiative, the strategy was intended to promote leadership and behavioural change, as well as delivering benefits to both the construction industry and the wider economy. The strategy aimed to reduce construction, demolition and excavation waste to landfill by 50% by 2012, compared to 2008 levels.

3.1.7 National Planning Policy

3.1.7.1 **National Planning Policy for Waste** - This document was published on 16 October 2014 and supersedes the Planning Policy Statement 10 (PPS10): Planning for Sustainable Waste Management. This introduces the Government's Waste Management Plan for England (2013), with a focus on sustainable waste management and minimising environmental impact.

3.1.7.2 **Waste Management Plan for England** - This document was published on 27 January 2021 and supersedes the Planning Policy Statement 10 (PPS10): Planning for Sustainable Waste Management. The plan includes changes to waste management plan requirements which have been made by the Waste (Circular Economy) (Amendment) Regulations 2020.

3.1.8 Regional Policy

3.1.8.1 **London Environment Strategy (May 2018)** - The strategy includes a number of overarching aims for 2050. Aims related to waste include the following:

i. London will be a zero waste city;

ii. By 2026 no biodegradable or recyclable waste will be sent to landfill and by 2030 65% of London`s municipal waste will be recycled.

3.1.8.2 **The London Plan** - This was introduced by the Mayor and the Greater London Authority in March 2021 to replace the previous London Plan (2016) and is a strategic plan setting out an integrated social, economic and environmental framework for the future development of London. The plan states that boroughs should manage London's waste within London as far as practicable, create positive environmental impacts from waste processing. The London Plan reiterates the targets of the London Environment Strategy (2018) including:

i. zero biodegradable or recyclable waste to landfill by 2026;

ii. a target of 95% for recycling/reuse of construction and demolition waste (Policy SI 7 Reducing waste and supporting the circular economy); and

iii. 65% of municipal (household and business) waste recycled by 2030.

3.1.8.3 The London Plan includes several policies which support and reinforce the requirements of the Waste Framework Directive.

3.1.8.4 Chapter 3 relates to Design and Section 3.3.10 notes that:

'To minimise the use of new materials, the following circular economy principles (see also Figure 3.2) should be taken into account at the start of the design process…

- *designing out waste – ensuring that waste reduction is planned in from*
- *project inception to completion, including consideration of standardised components, modular build and re-use of secondary products and materials*
- *designing for longevity*
- *designing for adaptability or flexibility*
- *designing for disassembly*
- *using systems, elements or materials that can be re-used and recycled.'*

3.1.8.5 Chapter 9 relates to Sustainable Infrastructure and Policy SI 7 relates to Reducing waste and supporting the circular economy. The policy requires that

'A. Resource conservation, waste reduction, increases in material re-use and recycling, and reductions in waste going for disposal will be achieved by the Mayor, waste planning authorities and industry working in collaboration to:

1) promote a more circular economy that improves resource efficiency and innovation to keep products and materials at their highest use for as long as possible
2) encourage waste minimisation and waste prevention through the reuse of materials and using fewer resources in the production and distribution of products
3) ensure that there is zero biodegradable or recyclable waste to landfill by 2026
…
5) meet or exceed the targets for each of the following waste and material streams:
a) construction and demolition – 95 per cent reuse/recycling/recovery
b) excavation – 95 per cent beneficial use'
…"

3.1.8.6 Policy SI 8 on Waste capacity and net waste self-sufficiency requires that:

A. In order to manage London's waste sustainably:

1. the equivalent of 100 per cent of London's waste should be managed within London

…

5. environmental, social and economic benefits from waste and secondary materials management should be created.'

3.1.8.7 As the reliability of construction, demolition and excavation waste (CD&E waste) data is low, arisings and apportionments for this waste stream were not set out in the London Plan. The adoption of circular economy principles in referable applications (and promoted in local plans) is expected to help London achieve the CD&E waste and material recovery targets early in the Plan period.

3.1.8.8 **London's Wasted Resource: The Mayor's Municipal Waste Management Strategy (2011)** – This strategy sets out the Mayor's policies and proposals to minimise the quantity of municipal waste produced, increase the amount of waste reused, recycled or composted, and generate low carbon energy from residual waste. The strategy also set out how the Mayor will further develop waste management infrastructure in London.

3.1.8.9 **Making Business Sense of Waste: The Mayor's Business Waste Management Strategy (2011**) – This is the first Mayoral strategy for London's business waste and sets out initiatives to help all kinds of businesses in London to save money and reduce the possibility of harm to the environment through more effective waste management.

3.1.9 Local Policy

3.1.9.1 **Bexley Local Plan (adopted April 2023)** – Bexley's plan includes three policies on waste including:

i. strategic policy SP12: Sustainable waste management. The SP12 notes the construction industry has an important role to play in the circular economy. The construction and operation of the built environment currently accounts for 60% of UK materials consumption and one third of all waste arisings. The Council will support the development of the circular economy by encouraging the waste and construction industries to: make resource use more efficient; reduce the production of waste; maximise the recycling of waste; and identify alternative business models.

ii. non-strategic, development management policies DP25 New waste management facilities and extensions and alterations to existing facilities;

iii. non-strategic, development management policies DP26 Waste management in new development. facilitates recycling, to meet London Plan waste management targets, while protecting visual and residential amenity and public health. The policy ensures proposals for residential development include detailed consideration of waste arising, promote circular economy outcomes and net zero-waste.

3.1.9.2 Bexley safeguarded strategic waste facilities and sites suitable for waste management uses. The strategic policy sets out the pooling of apportionment requirements and safeguards strategic waste sites.

3.1.9.3 **Reduction and Recycling Plan (RRP) for the London Borough of Bexley** – Sets out key actions for cutting waste and boosting recycling for the period 2018 – 2022, in line with the Mayor of London's Environment Strategy.

3.1.10 Guidance

3.1.10.1 **Waste & Resources Action Programme (WRAP)** –This programme assists the UK government to meet national and international commitments and to support resource efficiency in the UK. This is achieved by helping businesses and individuals within the UK to benefit from reducing waste, develop sustainable products and use resources in an efficient way. Furthermore, Recycle London is a communications programme delivered in partnership by The Greater London Authority and WRAP.

3.1.10.2 **Contaminated Land Applications in Real Environments (CL:AIRE)** is an independent, non-profit organisation that aims to encourage the sustainable remediation of contaminated land and groundwater throughout the UK, for effective social and economic use. This is achieved by increasing awareness and confidence in practical, sustainable remedial solutions.

3.1.10.3 **The CL:AIRE Code of Practice (CoP)** on the Definition of Waste provides an industry- and regulator-recognised method of demonstrating that site-derived soil arisings can be legitimately used as resource rather than designated as waste. The CoP demonstrates that the necessary lines of evidence are met to show that a material is not waste, and puts in place systems to monitor and track the use of materials through the employment of a Materials Management Plan (MMP).

SECTION 4 WASTE IN BEXLEY

4.1 RESIDENTIAL/HOUSEHOLD WASTE

4.1.1 The RRP for the London Borough of Bexley sets out key actions for cutting waste and boosting recycling, in line with the Mayor of London's Environment Strategy.

4.2 BEXLEY HOUSEHOLD WASTE COLLECTION SERVICES AND RECYCLING FACILITIES

4.2.1 Countrystyle currently provides household collection in Bexley. The following is currently collected:

i. Food waste – Collected every week in a kitchen caddy or food waste bin;

ii. Glass bottles and jars, plastic food containers and bottles, food and drink cartons and cans, plastic tubs and metal tins, foil – white bin

iii. Paper and cardboard – blue bin

iv. Garden waste (chargeable) – Residents can opt-in for garden recycling collection in a wheeled bin.

4.2.2 Bulky waste collections are possible through prior arrangement with the Council.

4.2.3 A household hazardous waste and disposal service is available for residents of the London Borough of Bexley. Hazardous household waste includes items such as:

i. asbestos

ii. pesticides

iii. petrol

iv. paraffin

v. diesel

vi. creosote, and

vii. paint strippers.

4.2.4 Neighbourhood recycling sites throughout Bexley providing local facilities for recycling materials including cans, glass, plastic, textiles and paper/card. Two household waste re-use and recycling centres are present in the borough at the following sites:

i. Maidstone Road, Foots Cray, DA14 5HS; and

ii. Thames Road, Crayford, DA1 5QJ.

4.2.5 The following can be recycled at these facilities:

i. batteries (car and domestic);

ii. bric a brac;

iii. card and cardboard;

iv. gas bottles and fire extinguishers;

v. food and drinks cans;

vi. glass bottles and jars;

vii. green garden waste;

viii. lawnmowers and garden machinery;

ix. liquid food and drinks cartons;

x. carpets and mattresses – recycled where possible;

xi. paper and magazines;

xii. plastic bottles and household containers;

xiii. rigid plastics;

xiv. plasterboard;

xv. metals - all metals;

xvi. up to five tyres;

xvii. wood, chipboard and plywood;

xviii. soil and rubble;

xix. household electrical bulbs, for lighting, including fluorescent tubes;

xx. cooking oil;

xxi. engine oil and filters;

xxii. electrical items; and

xxiii. textiles.

4.2.6 Commercial waste is not accepted at these facilities.

4.3 LONDON BOROUGH OF BEXLEY MUNICIPAL WASTE VOLUMES AND TREATMENT/DISPOSAL ROUTES

4.3.1 Data from the DEFRA, presented in Table 1 below, indicates the total amount of municipal waste arising and the different treatment/disposal methods from 2020/21 to 2021/22.

Table 1: Waste Arising and Treatment/Disposal Routes (2020/21 to 2021/22)

Management Type	2020/2021 Tonnes (%)	2021/22 Tonnes (%)
Recycled/composted	53,355 (47.98%)	43,936 (40.23%)
Landfilled	181 (0.16%)	175 (0.16%)
Incineration with EfW	57,798 (51.97%)	65,017 (59.54%)
Incineration without EfW	0 (0.0%)	0 (0.0%)
Other*	-120 (-0.11%)	71 (0.07%)
Total waste disposed	111,214	109,200
Input to immediate plant	1,414	5,200

Note: *Other includes waste treated-disposed through other unspecified treatment processes as well as process and moisture loss. Incineration with EfW: EfW is energy from waste. Also included are amounts rejected for recycling, composting or reuse where incineration with EfW is reported as the final destination of these rejects. Data from: https://www.gov.uk/government/statistical-data-sets/env18-local-authority-collected-waste-annual-results-tables

4.3.2 The primary method of disposal for waste collected in the London Borough of Bexley is currently incineration (with energy recovery) with accounts for 60% of all household waste. Riverside Resource Recovery Energy from Waste facility at Belvedere is the main incineration facility in Bexley with a capacity of 741,147 tonnes. A further Energy from Waste facility was approved in April 2020 for 750,000 tonnes, plus a 40,000 tonnes anaerobic digestive plant. Cory's site is due to be operational in 2024.

4.4 LONDON BOROUGH OF BEXLEY LOCAL WASTE FACILITIES AND CAPACITY

4.4.1 The London Plan sets out strategic requirements for London boroughs to address in their local plans. Policies SI 7 (Reducing waste and supporting circular economy), SI 8 (Waste capacity and new waste self-sufficiency) and SI 9 (Safeguarded waste

sites) specifically address waste issues, to facilitate London becoming self-sufficient in managing its own waste sustainably by 2026. The waste planning technical paper prepared by Southeast London Joint Waste Planning Group (London Boroughs of Bexley, Bromley, Lewisham, Southwark, Royal Borough of Greenwich, and the City of London) in 2022 sets out how the group meets the requirements.

4.4.2 Through Policy SI 8, A1 of the London Plan, the Mayor sets a target for "the equivalent of 100 per cent of London's waste should be managed within London (i.e. net self-sufficiency) by 2026". All London boroughs are required to set aside sufficient land within their statutory planning document(s) to manage this waste. Table 9.2 of the London Plan apportions the waste to be managed in each borough. Data in Table 3 below is an extract from Table 9.2 indicating the waste (in thousand tonnes per annum) apportioned to the London Borough of Bexley.

Table 2: Forecast of household, commercial and industrial waste 2021-2041 (tonnes per annum)

2021 (tonnes)	2041 (tonnes)
225,000	241,000

From London Plan 2021

Table 3: Apportionments of household, commercial and industrial waste 2021-2041 (tonnes per annum)

Apportionment *	2021 (tonnes)	2041 (tonnes)
6.6	225,000	241,000

From London Plan 2021,* Apportionment is per cent share of London's total waste to be managed by borough.

Table 4: Actual and projected capacity from safeguarded sites (tonnes per annum)

2021 (tonnes)	2030 (tonnes)	2030 (tonnes)
1,050,456	1,795,456	1,969,056

From Southeast London joint waste planning technical paper April 2022

SECTION 5 PREDICTED WASTE

5.1 ENABLING WORKS/DEMOLITION

5.1.1 Currently a relict gas holder, small brick buildings (including an electrical substation) and areas of hardstanding remain on site. Subsurface obstructions including footings/foundations are expected and relict structures are known to exist at the eastern boundary. It has been assumed that the remaining gasholder covers an area of 1,260 m^2 and foundations beneath the gasholder comprise a concrete slab (circa 0.3 m thick) and piles.

5.1.2 The estimated volumes of demolition waste have been calculated from knowledge of the current building constructions, and professional judgement based on previous experience. Table 5 below provides estimated volumes of demolition waste arising from all demolition activities on the site.

Table 5: Estimated demolition volumes (preliminary estimate)

Material	Tonnes
Asbestos	<0.5
Concrete	4,000
Brickwork	25
Timber	0.5
Tarmac	350
Metal	3,900
Electrical wiring	0.5

5.1.3 A vegetation scrape (circa 0.1 m) will be required and this is expected to generate approximately 1,000 m^3. It is unlikely that this material could be reused on site given the high proportion of organic material.

5.1.4 Following removal of the gas holder it has been assumed that 50 m^3 of hazardous material will be generated. This material will be treated onsite if possible.

5.1.5 Concrete generated onsite would be crushed and reused on site where possible.

5.1.6 Levels across the site need to be raised in order to form the required development platforms. Arisings generated during the construction phase will be reused on site. It is intended to reuse site-won material (compliant with the requirements of an Earthworks Specification & Remediation Strategy), under the CL:AIRE Definition of Waste: Development Industry Code of Practice via the Reuse on site of origin scenario and with a Materials Management Plan approved and registered by a Qualified Person.

5.1.7 Material will need to be imported to make up any shortfall in materials and provide clean cover in gardens and landscaping.

5.2 **CONSTRUCTION**

5.2.1 Wherever possible, materials arising will be re-used on site. Where unavoidable, materials will be removed off-site and landfilling will be used only as a very last resort where no other options are available therefore little waste is predicted.

5.2.2 It is considered that the majority of construction waste will be generated through off-cuts from fitting materials and spent materials. Waste will also be produced from the packaging of construction materials and the operation of maintenance facilities. Notably, contributing factors to construction waste include over-procurement, poor waste segregation, a high finishing standard requirement and a lack of space for storage of unused materials. Waste associated with the construction phase will be directly related to the actions of the construction contractor(s). For example, careful design and ordering of materials will reduce the amount of unwanted material brought to site.

5.2.3 The BRE document, *Waste Benchmark Data (issued 26 June 2012)* includes findings from six hundred and seventy-seven housing projects that have submitted data to the Smartwaste (a waste bench marking tool). The average waste generated during these projects was 18.1 m^3 waste per 100 m^2 of floor area. If the average area of each unit in the proposed development is 68.7 m^2 (average for UK homes built after 2010 – figure from LABC Warranty), this gives an average waste generation per unit of 12.43 m^3. This would equate to 4,873 m^3 for the residential portion (392 units) of the development.

5.2.4 The BRE document also looked at leisure and commercial retail projects (71one and 123one hundred and twenty three projects respectively). The average waste generated for leisure projects was 14.4 m^3 waste per 100 m^2 of floor area The average waste generated during commercial retail projects was 20.9 m^3 waste per 100 m^2 of floor area. Therefore, for the community/retail portion of the development this would equate to a range between 14.4 and 20.9 m^3.

5.2.5 The potential disposal routes for construction and demolition waste include:

i. Bricks and concrete which cannot be re-used, or recycled and re-used as hardcore, on site will be sent to the local recycling facilities;

ii. Materials of value, such as components of structures, pipes and steel bins from the demolition/site preparation and construction works could be sold direct to the local market for re-use; and,

III. Waste with a high enough calorific value (*e.g.* non-segregated general waste) could be sent to an energy recovery facility (ERF). The nearest facility is operated by Cory at Riverside Resource Recovery Ltd, Norman Road Belvedere DA17 6JY (approximately 1.5 miles from site).

SECTION 6 MITIGATION

6.1 ENABLING WORKS/CONSTRUCTION

6.1.1 In order to reduce the environmental impact of waste arising during enabling works and the construction phase, Site Waste Management Plans (SWMPs) will be implemented.

6.1.2 SWMPs are considered to encourage more efficient waste management practices, improve environmental performance, reduce waste disposal costs (by minimising waste production and promoting re-use, recycling and recovery of waste) and reduce waste crimes (such as fly-tipping).

6.1.3 Although the Site Waste Management Regulations 2008 were repealed on 1 December 2013, the preparation and implementation of a Site Waste Management Plan (SWMP) is still considered to remain industry best practice.

6.1.4 The contractor would also ensure that:

i. All Duty of Care documentation is kept in a dedicated file and be made available for viewing if required;

ii. Systems are in place to audit all subcontractors and check that appropriate licences are held;

iii. All disposal documentation (*e.g*. transfer notes and consignment notes) are clearly marked with the time and date of collection. In addition, the final destination of the waste, a detailed description of the waste type and if appropriate the European Waste Code (EWC) would also be recorded on the document;

iv. A quantitative and qualitative estimate of worksite waste produced during construction is kept; and

v. Where necessary, the requirements for reporting under the Hazardous Waste Regulations are met (e.g. the hazard rating).

6.1.5 This strategy provides an indication of the potential waste generation during the demolition and construction phases and some guidance for waste mitigation. Further development of the waste management options should be undertaken by the principal contractor to identify potential waste generation and appropriate mitigation, including formalisation of a Site Waste Management Plan.

6.1.6 Waste should be managed effectively at all stages of the construction project including design and procurement. For example, pro-active buying schemes (including group purchasing agreements currently in place) could be established to minimise the packaging and waste wrapping of products.

6.1.7 The buyer should ensure the accurate scheduling and ordering of materials to minimise waste through over-ordering (e.g. by ensuring the correct length of handrails are ordered and the correct lengths are taken and used in the allotted position).

6.1.8 Site waste should be segregated and disposed of responsibly. It is also important that the developer and principal contractor assess the appropriate waste streams prior to construction to identify ways to minimise waste production. The Waste Resources and Action Programme (WRAP) published 'Achieving good practice Waste Minimisation and Management' which includes standard, good and best practice performance benchmarks for the recovery of waste material during construction projects (see Table 6). These provide benchmark figures against which new developments should aim to meet for their major waste streams.

Table 6: Standard, Good and Best Practice recovery rates by material – from WRAP report.

Material	Standard Recovery %	Good Practice Quick Win %	Best Practice Recovery %
Timber	57	90	95
Metals	95	100	100
Plasterboard	30	90	95
Packaging	60	85	95
Ceramics	75	85	100
Concrete	75	95	100
Inert	75	95	100
Plastics	60	80	95
Miscellaneous	12	50	75
Electrical equipment	Limited information	70*	95
Furniture	0 - 15	25	50
Insulation	12	50	75
Cement	Limited information	75	95
Liquid and oils	100	100	100
Hazardous	50	Limited information**	Limited information**

*This is a required recovery target for the type of WEEE likely to be from construction sites. e.g. lighting (the WEEE regulations, Jan 2007).

**This cannot be 100% as much hazardous waste (e.g. asbestos) must be land filled.

6.1.9 In order to adhere to the principles of the waste hierarchy, the following principal objectives will be set:

i. Reduce the volumes of waste produced through early design consideration and specification;

ii. Where waste is generated, re-use and recycle waste materials wherever possible (For example, the re-use potential for brick and similar material would depend on local market conditions, and the condition of the materials.)

iii. Reduce volumes of waste sent to landfill; and

iv. Minimise transport requirements, particularly road vehicle movements, with the use of alternative transport means such as rail to be considered.

6.1.10 Where materials are not retained on site, these should be removed and disposed of in accordance with all relevant statutes. The main ways to achieve these objectives are to:

i. Minimise waste production;

ii. Segregate waste for re-use, recycling and recovery;

iii. Reduce vehicle movements on the road through two way trips, and investigate use of river transport;

iv. Encourage re-use of material through a Waste Inventory; and

v. Offer incentives to the contractor to achieve key goals.

6.1.11 Contractors will be required to use the CL:AIRE Code of Practice (CoP) on the Definition of Waste. This provides an industry and regulator-recognised method of demonstrating that site-derived soil arisings can be legitimately used as resource rather than designated as waste. The CoP demonstrates that the necessary lines of evidence are met to show that a material is not waste and puts in place systems to monitor and track the use of materials – the Materials Management Plan.

6.1.12 Where there is no alternative other than to dispose of materials off-site as waste, they will be removed from site in accordance with the waste duty of care in Section 34 of the Environmental Protection Act 1990, and the Waste (England and Wales) Regulations 2011.

SECTION 7 RESIDUAL EFFECTS AND CONCLUSIONS

7.1 The mitigation measures described above will assist in reducing the quantity of waste generated during the construction and operational phases, nonetheless there is likely to still be waste generated on site during these phases. This waste will consequently be dealt with accordance with the principles of the waste hierarchy and application of the proximity principle. That is, where waste generation is unavoidable and all other means have been expended, waste will be dealt with by sites as close to the development as possible and the Best Practicable Environmental Option (BPEO) will be explored.

7.2 Following mitigation, it is considered that these effects and will not affect the London Borough of Bexley`s ability to reach the various waste collection and recycling targets or the London Borough of Bexley`s overall waste capacity.

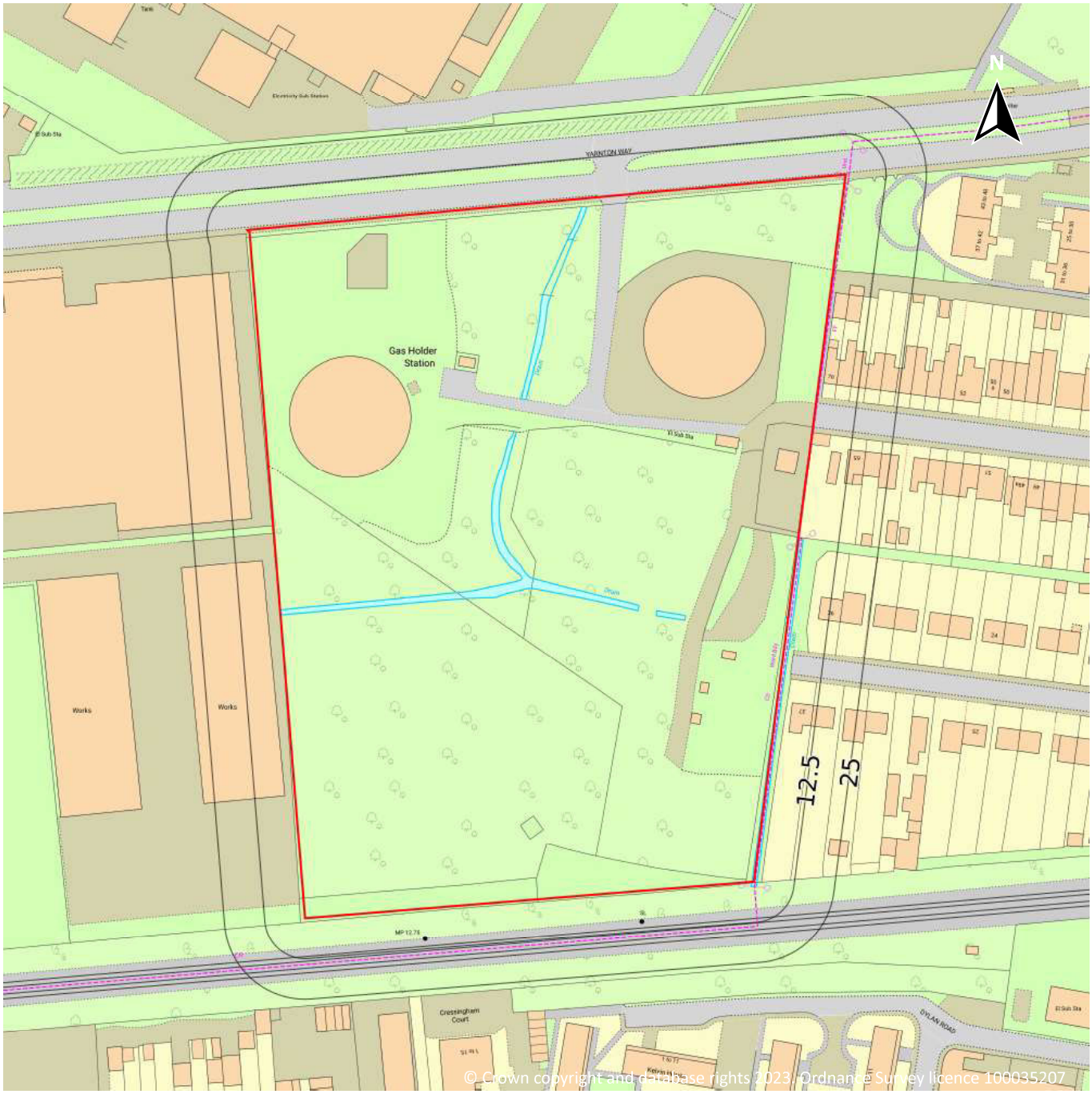
APPENDIX 1 ▪ Drawings & figures

Recent aerial photograph

Capture Date: 17/07/2021

Site Area: 3.49ha

OS MasterMap site plan



Site Area: 3.49ha

SGN - Belvedere

SEQUENCING PLANS

Bellway | Partnerships creating communities

Status:

Based upon Design Freeze Scheme of 04/08/2023

Notes:

Bellway London Partnerships
Anchor Boulevard
Crossways Business Park
Dartford
Kent
DA2 6QH

Project:

SGN Belvedere

Drawing Title:

BLOCK PLAN

Issue Date:

23/08/2023

Reference:

C0741-84/BP10/001

Rev:

0

N

ACCOMMODATION

Phase	Block	Storeys	No. Units	PD	AFF
1	A1	4	6	0	6
1	A2	4	6	6	0
3	A3	4	6	6	0
3	A4	4	6	6	0
6	A5	4	6	6	0
2	B1	4/5	32	0	32
2	B2	4/5	29	29	0
6	C1	5	20	20	0
6	C2	5	20	20	0
1	D1	3	12	10	2
1	D2	3	12	12	0
3	D3	3	10	10	0
3	D4	3	13	13	0
3	D5	3	11	11	0
5	D6	3	9	9	0
6	D7	3	8	8	0
4	E1	5	28	28	0
4	E2	5	28	28	0
4	E3	5	28	28	0
4	E4	5	28	28	0
4	E5	5	28	28	0
4	E6	5	28	28	0
5	F	4	18	18	0
		Totals:	392	352	40

Bellway | Partnerships creating communities

Status:

Based upon Design Freeze Scheme of 04/08/2023

Notes:

1. Phase 0 - S278 & Main infrastructure
2. Phase 1 - initial residential units to west of site

Key

- 1 Phase reference
- Sub-station
- Affordable
- Private development (PD)

Bellway London Partnerships
Anchor Boulevard
Crossways Business Park
Dartford
Kent
DA2 6QH

Project: SGN Belvedere

Drawing Title: **Phasing Plan**

Issue Date: 23/08/2023

Reference: C0741-84/SK10/001

Rev: 0

N

ACCOMMODATION

Phase	Block	Storeys	No. Units	PD	AFF
1	A1	4	6	0	6
1	A2	4	6	6	0
3	A3	4	6	6	0
3	A4	4	6	6	0
6	A5	4	6	6	0
2	B1	4/5	32	0	32
2	B2	4/5	29	29	0
6	C1	5	20	20	0
6	C2	5	20	20	0
1	D1	3	12	10	2
1	D2	3	12	12	0
3	D3	3	10	10	0
3	D4	3	13	13	0
3	D5	3	11	11	0
5	D6	3	9	9	0
6	D7	3	8	8	0
4	E1	5	28	28	0
4	E2	5	28	28	0
4	E3	5	28	28	0
4	E4	5	28	28	0
4	E5	5	28	28	0
4	E6	5	28	28	0
5	F	4	18	18	0
		Totals:	392	352	40

Bellway | Partnerships
creating communities

Status:

Based upon Design Freeze Scheme of 04/08/2023

Notes:

1. Revised to reflect scheme as at 02/03/2021 and build to suit continuous rate of delivery
2. All Blocks of flats are assumed to be traditional load-bearing masonry construction above a single storey RC transfer structure. Houses are assumed to be traditional LBM construction.

Key

- Build route
- 1 Phase reference
- Sub-station
- Affordable
- Private development (PD)

Bellway London Partnerships
Anchor Boulevard
Crossways Business Park
Dartford
Kent
DA2 6QH

Project:
SGN Belvedere

Drawing Title:
Block Plan

Issue Date:
23/08/2023

Reference:
C0741-84/SK10/002

Rev:
0

N

Bellway Partnerships
creating communities

Status:

Based upon Design Freeze Scheme of 04/08/2023

Notes:

1. Phase 0 - S278 & Main infrastructure
2. Phase 1 - initial residential units to west of site
3. BAPA required for any temporary works (cranes, scaffolds etc) that could potentially fall within 3m of Network Rail land

Key

- 1 Phase reference
- Sub-station
- Accommodation / welfare
- Materials storage
- Parking

Bellway London Partnerships
Anchor Boulevard
Crossways Business Park
Dartford
Kent
DA2 6QH

Project:

SGN Belvedere

Drawing Title:

Logistics Plan

Issue Date:

23/08/2023

Reference:

C0741-84/SK10/003

Rev:

0

APPENDIX 2 ▪ SWMP template

Site Waste Management Plan data sheet

Project name:

Date of sheet input:

Stage of project:

Project address / location:

Estimated cost of project:

Client:

Principal Contractor:

Manager of waste management:

Person and company completing form:

Destination of waste (permits / licence / exepmtion reference numbers):

A	B	C	D

Details of the people removing waste from your site (including their waste carrier resitration number):

A	B	C	D

Quantity (specify volume or weight eg. m3, kg, T, number of skips)

Types of waste arising:	**EWC** code**	**Reused**				**Recycled**						**Disposed of**				Relate to boxes above (ie A / B / C / D)		**WTN completed?**
		on site		off site		for use on site		for use off site		Sent to recycling or reprocessing facility		land-fill		Other than land-fill				
Target / Achieved		T	A	T	A	T	A	T	A	T	A	T	A	T	A	Waste site	Waste carrier	
Inert																		
Non-Hazardous																		
Hazardous																		
Totals (m^3, kg, T)																		
Performance score as %*																		
SWMP Target %*																		

IDOM

IDOM Cromford Mills, Mill Lane, Matlock, Derbyshire DE4 3RQ
t +44 (0)1773 829 988 **e** info.derbyshire@idom.com **idom.com**
Registered in England No. 02740216 Registered office: as above

Appendix C
Flexible Design

10.8 NON-RESIDENTIAL SPACE

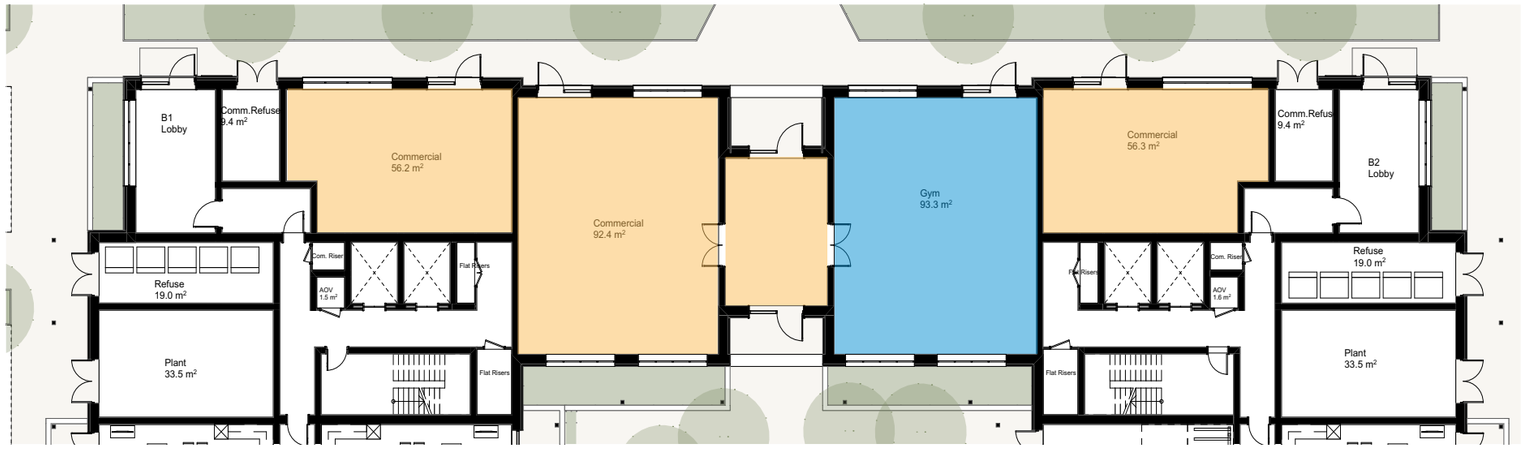
The non-residential space proposed within the scheme is all located within Block B to the north of the site. Facing on to Yarnton Way and situated between the two main points of access to the development, commercial uses here will not only be easily accessible but clearly visible form the main road. The non residential space is currently configured as follows:

Unit 1	56.3sqm	Commercial - to be defined
Unit 2	92.8sqm	Commercial - to be defined
Unit 3	92.8sqm	Residents gym
Unit 4	56.3sqm	Comercial - to be defined

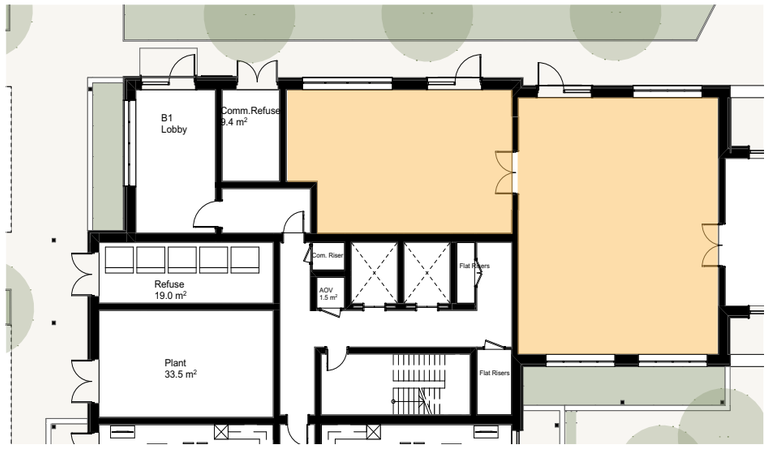
As proposed, the size of each unit is designed to be less than 100sqm, avoiding the need for a commercial sprinkler system and the associated storage tanks. However should an alternative arrangement be preferred, units can be combined in different configurations provided a 60min. wall and fire doors is retained to keep the compartmented spaces individually less than 100sqm. An example of this is shown in Figure. 2 below. Alternatively, the spaces can be subdivided into smaller units as indicated in Figure 3, creating flexibility to accommodate cellular working or smaller individual lets / uses.

Currently, aside from the residents gym, the other non-residential spaces have not been defined and will reflect market interest at the appropriate time. It is thought that an element of residents workspaces would be welcomed, offering people that work from home an alternative desk space on their door step, providing a shared working environment with the benefits of communal office amenities.

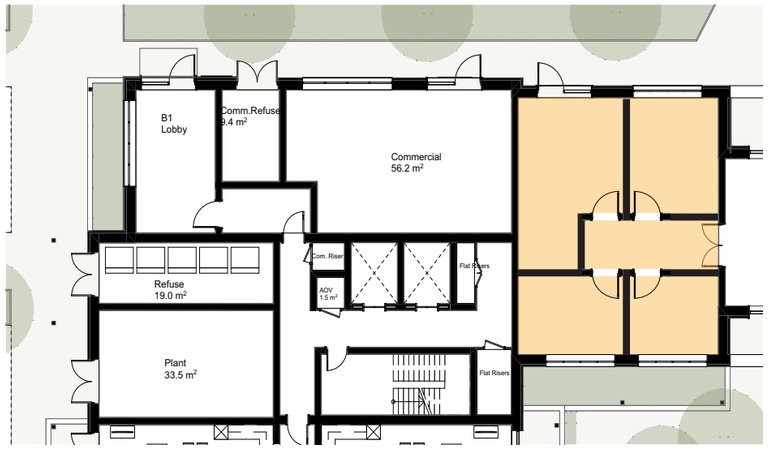
Given the limited retail offer north of the railway line,and in light of the number of new residents that the SGN Belvedere develop will bring, it is thought that a small local shop may also be an be appropriate commercial use for one of the proposed units - a point raised within the most recent public consultation. The non-residential areas will have a ground floor to soffit height of XXm, appropriate for a small retail unit.



1. PROPOSED ARRANGEMENT FOR NON-RESIDENTIAL SPACE WITHIN APPLICATION SCHEME INCLUDING RESIDENTS GYM



2. PART PLAN SHOWING ALTERNATIVE ARRANGEMENT COMBINING TWO SPACES



3. PART PLAN SHOWING ALTERNATIVE ARRANGEMENT SUBDIVIDING SPACES

4. SECTION THROUGH BLOCK B (NORTH) SHOWING THE NON-RESIDENTIAL SPACE

Appendix D

Project Waste Management Plan

Southern Gas Network Belvedere Holders
Stations for Bellway Homes Ltd (Client)

All works constructed by
Bellway Homes Ltd
(Principal Contractor)

Site Waste Management Plan

	Name/Position	Signature	Date

DOCUMENT RECORD SHEET

This document will be updated as often as necessary to ensure it reflects the progress of the project, with revisions recorded below.

The SWMP is a "LIVE" document and the data is to be compiled and reviewed prior to, during and after completion of the project.

Revision Register

Version	Date	Changes

TABLE OF CONTENTS

1.0 INTRODUCTION

The Site Waste Management Regulations 2008 were repealed on 1 December 2013. However, the preparation and implementation of a Site Waste Management Plan (SWMP) is considered to remain industry best practice.

SWMPs are considered to encourage more efficient waste management practices, improve environmental performance, reduce waste disposal costs (by minimising waste production and promoting re-use, recycling and recovery of waste) and reduce waste crimes (such as fly-tipping).

Evolving legislation and increasing material-specific recycling targets leads to a responsibility to create and implement a proactive and efficient Site Waste Management Plan for every project.
Bellway Thames Gateway is working to ensure that a standard practical template is adopted and managed at all times. This strategy will ensure that we are able to reduce the environmental impact of our developments, both now and in the future, and leave a positive legacy for future generations.

The Site Waste Management Plan (SWMP) provides a structure for waste disposal at **all** stages during a construction project, including demolition and excavation works.

Typically it will identify;

- **Who** will be responsible.
- **What** type of waste will be generated.
- **How** the waste will be managed, reduced, re-used or recycled.
- **How** the quantity of waste generated from the project will be measured.

The contents of the SWMP are a statement of Bellway's intent with regards to the good practice of waste management throughout the life of the project.

The observations, comments, data and conclusions are to be recorded and made available to assist the preparation of future Site Waste Management Plans.

2.0 RESPONSIBILITY

The **Construction Director** is responsible for ensuring that a Site Waste Management Plan is prepared and issued for each individual project.

The **Site Manager** is responsible for the implementation of the Site Waste Management Plan on site from commencement of the project, and may also undertake the role of **Site Waste Champion** (see below). The Project **Buyer** is responsible for the recording and reviewing of waste returns.

The **Construction Director** and **Technical Director** are responsible for the monitoring and setting of waste management performance targets.

The **Site Waste Champion** is responsible for promoting the awareness of the SWMP amongst the workforce, monitoring and reporting on waste generation on site, monitoring and enforcing waste separation on site, monitoring the effectiveness of the SWMP and encouraging suggestions for better waste management on site.

Responsible persons for this project:

Title	Name
Technical Director	
Construction Director	
Site Manager	
Buyer	
Site Waste Champion (where applicable)	

Declaration

Bellway Homes Limited (as Client and Principal Contractor) will take all reasonable steps to ensure that:

All waste from the site is dealt with in accordance with the waste duty of care in section 34 of the Environmental Protection Act 1990 and the Environmental Protection (Duty of Care) Regulations 1991; and,

Materials will be handled efficiently and waste managed appropriately; and,

Will aim to prevent a minimum of 95% of waste generated going to landfill.

Signed:

On behalf of the Client / Principal Contractor:

……

3.0 WASTE IDENTIFICATION

The site trades have been listed and their anticipated waste products have been identified (see appendix A).

The wastes have been given their specific waste stream classification and assessed for potential re-use within the project.

The various waste streams have been classified with reference to a six-digit code (EWC code) and associated description, as required by the List of Wastes (England) Regulations 2005.

It is expected that the site manager will notify the relevant person as other wastes are identified during the course of this project.

The master Bellway template will be expanded to include any additional wastes identified.

Wherever possible, wastes must be reclaimed, recycled or re-used on the site.

If this is not possible then the Site Manager should either;

a) Discuss with the Contracts Manager any materials that maybe incorporated within other developments,

b) Feedback to the Buyer regarding potential alterations to avoid unnecessary waste.

4.0 WASTE HANDLING & MANAGEMENT

As part of the hierarchy of waste management, all waste must be managed in the following order;

1) PREVENT, 2) RE-USE, 3) RECYCLE,
4) OTHER RECOVERY, 5) DISPOSAL

Bellway Homes has a legal, corporate and social responsibility to follow these principles.

This can be achieved through all stages of a construction project, including design and procurement.

Procurement
Pro-active buying schemes (including group purchasing agreements currently in place) shall be established to minimise the packaging and waste wrapping of products.

The buyer shall ensure the accurate scheduling and ordering of materials to minimise waste through over ordering (e.g. by ensuring the correct length of handrails are ordered and the correct lengths are taken and used in the allotted position).

Material Control
Site will ensure that materials do not arrive too early and are wasted due to unsuitable/inappropriate storage areas and storage time scales (*i.e*. weather damaged, damaged by other trades, etc.)

Storage of materials will be an important factor and good house-keeping will assist the target achievement (*e.g*. plasterboard packs being installed within units too early, and other trades using them as workbenches, causing side damage and top board damage).

The site will be secured to ensure that no fly-tipped wastes can be left at the site by others.

The following practices will also be promoted where possible:

- Re-use of offcuts and discarded materials through awareness (*e.g*. timber offcuts greater in length than 300 mm being re-used for noggins and packers).

- Re-use of inert fill as site won materials.

- Segregating operatives' recycling to site stores for re-use of materials that others may have discarded as waste.

- Returning products to manufacturers for reconditioning and re-use.

- Forwarding of materials to specialist handlers e.g. to scrap metal recycling facilities.

Specific Measures Taken on this Site to Minimise Waste

1) Concrete from the Demolition stages will be used as hardcore at various locations.

2) Topsoil stripped from site will be strategically placed into a soil heap and will be used (subject to testing) on future gardens and landscaping.

3) Prefabrication Spandrel and Gable Panels in the roof space have been used extensively and we expect considerable waste reduction, especially on Blockwork (EWC 17.01.07)

Justification of Waste Management Decisions Undertaken

All site waste to be segregated on site – 4 or 5 skips to be on site at the same time which will enable general waste to be kept to a minimum.

It is considered that these measures are comprehensive, although they will be reviewed at key intervals during the project to ensure that waste minimisation is maximised throughout all stages.

Storage & Disposal

All waste shall be stored and disposed of responsibly.

A dedicated site waste storage compound area incorporating segregated waste bins/skips shall be provided on site (see Appendix B). The compound will be easily accessed and will have a suitable hard standing for the locating of bins and will be secured by a fence (Heras or similar).

The waste management compound set up will be in accordance with the generic design and include the following waste streams (see section 5.0 for more detailed descriptions);

EWC	Description	Present on this development (tick if applicable)
15-01-01	General Paper, Card, Packaging	
15-01-02	Plastic Packaging	
15-01-04	Metallic Packaging (e.g. empty paint tins)	
15-01-06	Mixed Packaging	
15-01-10*	Packaging containing residues of dangerous substances (e.g. paint, oil)	
17-01-07	Mixed hardcore (inert)	
17-02-01	Timber Waste	
17-04-07	Mixed Metal	
17-05-03*	Soils & Stone of Hazardous Nature	
17-05-04	Soil & Stone	
17-08-02	Plasterboard	
17-09-04	Mixed Construction Waste	
20-01-08	Canteen Waste	

5.0 WASTE SEGREGATION

All waste produced on site can be segregated into ten main waste streams*. Materials allowed into each skip type will be as follows;

EWC 15-01-06 Mixed Packaging
(includes 15 01 01 paper & cardboard, 15 01 02 plastic packaging, 15 01 03 wooden packaging and 15 01 04 metallic packaging)

Plastic, Paper, Cardboard, Polythene, Metal band wraps, Plastic, Electricians Waste, Polystyrene and Office Waste

This enclosed skip is for any waste that is Light Compactable. If you can break it over your knee, or crush it with your foot, it can go in this skip. No solid or large materials can be put in this skip. It will damage the vehicle that services it.

EWC 15-01-10 Packaging containing residues of or contaminated by dangerous substances (Hazardous)

Empty paint tins and aerosol cans may be included in 15-01-06 however, if there is any residue left these containers should be stored separately and classed as 15-01-10 (hazardous waste))

EWC 17-01-07 Mixed Inert Hardcore

Rubble, Brick / Block, and Concrete (mixed)

This skip is for any type of material that can be re-used as a crushed material.

EWC 17-02-01 Wood

Wood Only

No chipboard or M.D.F. Chipboard & M.D.F cannot be recycled because they break down to dust and already have glues contained within.

EWC 17-04-07 Mixed Metals

All varieties of Mixed Metal

EWC 17-05-03 Soil and Stones from Contaminated Location

Muck Away Stones/Soil from Contaminated Site or Part of Site. This must be sent to an Authorised Disposal Site.

EWC 17-05-04 Soil & Stone (Other than above)

Excavated materials other than above in Muck Away Vehicle.

EWC 17-08-02 Plasterboard

All Gypsum based material

EWC 17-09-04 Mixed Construction Waste

M.D.F, Chipboard, Plasterboard
This is the most expensive waste stream on your site. **"PLEASE TRY TO REDUCE IT"**
In an effort to reduce this type of waste, Bellway will provide plasterboard bags or skips for removal and recycling of plasterboard products by British Gypsum Limited.

EWC 20-01-08 Canteen Waste

Food Waste generated from site canteen and site operatives.

For any other waste please refer to the following link to determine the appropriate EWC code:
https://www.gov.uk/how-to-classify-different-types-of-waste/construction-and-demolition-waste

***Where segregation into the full ten streams is not possible, a justification will be provided in Section 4.0**

6.0 WASTE MANAGEMENT DOCUMENTATION AND MONITORING

The Site Manager for the Principal Contractor shall ensure that legislatively required waste management documentation is reviewed and/or verified to ensure regulatory compliance by the following:

- Where appropriate, register the site as a hazardous waste producer

- A record shall be kept of all waste disposed or transferred through a system of signed Waste Transfer Notes which shall be kept in folders in the Site Office.

The Site Manager for the Principal Contractor must record the following (using waste records form provided in Appendix I):

- The identity of the person removing the waste

- The waste carrier registration number – a list of all waste carriers is to be included in Appendix H (where applicable)

- All waste carriers shall hold a Waste Management Licence and be authorised to handle and deal with the identified waste stream

- Confirmation that the waste carrier is registered to remove the waste through the Environment Agency's public register database (see Appendix H)

- A copy of, or reference to, the written description of the waste; and

- Check with the waste carrier where the waste is to be taken and ensure that the destination is authorised to receive it, *i.e.* that the operator of that site holds a permit under the Environmental Permitting (England and Wales) Regulations 2010 or is registered as exempt

In addition the Site Manager for the Principal Contractor must review the plan regularly (not less than every six months) to ensure that it accurately reflects the progress of the project. The Contractor must:

- Review the plan

- Record the types and quantities of waste produced (using the waste records form in Appendix I)

- Record the types and quantities of waste that have been-
    - Re-used (and whether on or off site)
    - Recycled (and whether on or off site)
    - Sent for another form of recovery (and whether on or off site)
    - Sent to landfill; or
    - Otherwise disposed of; and

- Update the plan to reflect the progress of the project (and record revisions on the document register sheet)

7.0 MEASURING & MONITORING

The site manager shall diligently ensure that the skips and bins are fully filled and arrange the collection.

The site manager shall record the number of skips and volume of waste out on the form contained within Appendix D.

This will be checked by the agent against the buyer's monthly return.

The Buyer will be responsible for monitoring the effectiveness of this plan and will use the feedback from skip tickets/waste reports to achieve this.

The progress and results of the plan shall be reviewed at the monthly site meetings, and a bar chart will be displayed within the site office and canteen showing the actual performance versus the target waste criteria (see Appendix E).

The monthly reports will be relayed to the Site Agent for information and comment and the results logged for inclusion in the contract completion report.

Within three months of the project being completed the SWMP will be updated by the Buyer using the contract completion report in Appendix F to include:

- Confirmation that the plan has been monitored on a regular basis to ensure that work is progressing according to the plan and that the plan was updated in accordance with this regulation;
- An explanation of any deviation from the plan;
- A comparison between the estimated quantities of each waste type against actual quantities of waste type;
- An explanation of any differences between the forecast and actual levels of waste produced, and
- An estimate of the cost savings that were achieved through implementing the SWMP

This information must always be made available to authors of subsequent Site Waste Management Plans for inclusion in their target setting and management options.

8.0 SITE WASTE TARGETS

Industry statistics identify national average volumes of waste generated by residential developments employing this type of construction.

The figures are shown in the tables below (obtained from monitoring previous Bellway sites).

Historic Waste Generated Per 100m² Construction (Residential Development – Ponton Road)			
Waste Classification	**EWC**	**Historic Volumes (m³)**	**% Ratio**
Mixed Packaging		88	
Packaging with residues of dangerous substances		7	
Concrete		49	
Mixed Construction Waste		198	
Mixed Inert Hardcore		310	
Metals		350	
Insulation		465	
Wood		1120	
Soil & Stones (not 17-05-03)		90	
Hazardous (contaminated soil & stones)		5	
Plasterboard		42	
Paper and cardboard		2	
Other (Canteen Waste)		38	

1. Historic figures obtained from monitoring previous sites.

The 100 m² quantity is a convenient tool to measure and set new targets.

Each waste stream is broken down into average volumes of waste per 100 m² of construction, and is then converted into an overall anticipated volume of waste for the site.

When setting new targets it is essential that they are realistic and achievable to encourage site wide ownership of the strategy.

SGN Belevdere will set a waste generation target in line with Bellway's own previous good record and with BRE benchmarks in mind. The estimated construction figures are set out below.

BRE SMARTwaste benchmarks (June 2012)		
Area type	**Benchmark Waste (tonnes/100 m2)**	**Total waste (tonnes/100m2)**
Residential	16.8	5,085
Commercial	27.5	56

Progress towards achieving this target will be monitored monthly as outlined within this document.

The waste arising from the development will be formed of multiple streams with different waste management options and destinations. Destinations should be informed by the waste hierarchy where possible, and amounts should be reflective of the targets set out within this report to prevent 95% of waste going to landfill. The potential waste destinations are summarized below.

Waste Stream	**Re-used?**	**Recycled?**	**Recovered?**	**Stream destination**
Brick	☑			Crushed to aggregate for re-use
Concrete	☑			Crushed to aggregate for re-use
Inert	☑			Crushed to aggregate for re-use
Metals		☑		Recycling of metal materials
Plasterboard		☑		Recycled
Timber		☑		Recycled
Floor coverings		☑		Recycled
Hazardous Waste				Landfill
Mixed waste		☑		Recycled or Landfill
TOTAL	**Cumulative target = 95%**			

Appendix E

Operational Waste Management Strategy

ARDENT
CONSULTING ENGINEERS
AN EMPLOYEE OWNED COMPANY

BELLWAY HOMES LIMITED

YARNTON WAY, BELVEDERE

WASTE MANAGEMENT PLAN

REPORT REF.
194180-R12

August 2023

HEAD OFFICE: 3rd Floor, The Hallmark Building, 52-56 Leadenhall Street, London, EC3M 5JE **T** | 020 7680 4088
EDINBURGH: Suite 35 4-5 Lochside Way Edinburgh EH12 9DT **T** | 0131 516 8111
ESSEX: 1 - 2 Crescent Court, Billericay, Essex, CM12 9AQ **T** | 01277 657 677
KENT: Suite 10, Building 40, Churchill Business Centre, Kings Hill, Kent, ME19 4YU **T** | 01732 752 155
MIDLANDS: Office 3, The Garage Studios, 41-43 St Mary's Gate, Nottingham, NG1 1PU **T** | 0115 697 0940
SOUTH WEST: City Point, Temple Gate, Bristol, BS1 6PL **T** | 0117 456 4994
SUFFOLK: Suffolk Enterprise Centre, 44 Felaw Street, Ipswich, IP2 8SJ **T** | 01473 407 321

Email: enquiries@ardent-ce.co.uk

Contents

Page

Appendices

Drawings

Document Control Sheet

REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
-	Draft Client Issue	GL	AG	DRAFT	17.08.23

Distribution

1. Introduction

1.1. Ardent Consulting Engineers (ACE) were appointed by Bellway Homes Limited to prepare a Waste Management Plan (WMP) for the proposed redevelopment of the site to provide residential units including affordable housing (Use Class C3) and commercial floorspace (Class E) in new buildings ranging between 3 to 5 storeys in height, together with associated car parking and cycle storage, landscaping including new areas of public open space and a reptile retention zone, associated infrastructure including new junctions off Yarnton Way, drainage and land raising, (hereafter known as 'the site').

1.2. The formal site description is as follows:

"Redevelopment of the site to provide residential units including affordable housing (Use Class C3) and commercial floorspace (Class E) in new buildings ranging between 3 to 5 storeys in height, together with associated car parking and cycle storage, landscaping including new areas of public open space and a reptile retention zone, associated infrastructure including new junctions off Yarnton Way, drainage and land raising".

1.3. This Site Waste Management Plan (SWMP) has been produced for submission to London Borough of Bexley (LBB), who act as the local planning authority. In addition, Transport for London (TfL) is a statutory consultee given the scale of the development proposal and they are responsible for roads in the surrounding area.

1.4. This WMP seeks to follow the requirements set out in the National Planning Policy Framework (NPPF), and the supporting Planning Practice Guidance (PPG).

1.5. This WMP also follows southeast London Boroughs joint waste planning technical paper and details within National British Standards.

1.6. Following this introduction, the remainder of this report is structured as follows:

- **Section 2.0** includes an overview of relevant national/local policy and assessment/design guidance pertinent to the scheme;

- **Section 3.0** reviews existing conditions at the site and in the surrounding area, including the current highway layout;
- **Section 4.0** provides a description of the proposed development including details on the proposed strategies for access and servicing;
- **Section 5.0** explains the methodology behind the assessment;
- **Section 6.0** considers the operational waste management systems; and
- **Section 7.0** provides a summary and sets out the conclusions of the WMP.

2. Policy Context

National Policy

National Planning Policy Framework (MHCLG, July 2021)

2.1. The National Planning Policy Framework (NPPF) outlines the Government's planning policies for England and how they are expected to be applied. The NPPF does not contain specific waste management policies. Instead, national waste planning policy is contained within the Waste Management Plan for England (December 2013) and the National Planning Policy for Waste (October 2014).

Planning Practice Guidance (MHCLG, updated October 2019)

2.2. Planning Practice Guidance (PPG) provides a web-based resource in support of the NPPF. There are two guidance documents that are relevant to waste, 'Design' and 'Waste'.

2.3. The document entitled 'Design' states that carefully planned bin storage is particularly important. The Local Authority should ensure that each dwelling is carefully planned so that sufficient bin storage is provided, which is discretely designed and accessible. Storage should be allocated based on waste segregation, collection and management practices within the relevant Local Authority (e.g. recycling, food waste collection and landfilling).

2.4. The document entitled 'Waste' outlines the considerations local planning authorities should give towards waste management, both within Local Plans and with regards to the Waste Hierarchy.

2.5. This includes guidance on considerations to be included within development applications:

- The promotion of the *"sound management of waste from any proposed development, such as encouraging on-site management of waste where this is appropriate, or including a planning condition to encourage or require the developer to set out how waste arising from the development is to be dealt with"*;

- *"Ensuring that collections of household and similar waste are organised so as to help towards achieving the higher levels of the Waste Hierarchy"*;

- That steps are *"taken to ensure effective segregation of wastes at source including, as appropriate, the provision of waste sorting, storage, recovery and recycling facilities"*; and

- That it will be useful for proposals that are likely to generate significant volumes of waste through the development or operational phases to include a waste audit. *"This audit should demonstrate that in both construction and operational phases of a proposed development, waste will be minimised as far as possible and that such waste as is generated will be managed in an appropriate manner in accordance with the Waste Hierarchy"*.

Waste Management Plan for England (2013)

2.6. The Waste Management Plan for England outlines the steps required to move towards a zero-waste economy as part of the transition to a sustainable economy. The Plan provides an analysis of current waste management practices in England and evaluates implementation of the objectives and provisions of the Waste Framework Directive.

National Planning Policy for Waste (2014)

2.7. The National Planning Policy for Waste provides the planning framework to enable Local Authorities to put forward, through local waste management plans, strategies that identify sites and areas suitable for new or enhanced facilities to meet the waste management needs of their areas. Non-waste developments include any development whose end function is not directly related to waste, waste developments include landfills; waste disposal; waste treatment; waste recycling plants; and Household Waste Recycling Centres (HWRCs). Should the end function of the development in question have an alternative end function to that of 'waste' developments as listed above, then it is to be considered a non-waste development. The National Planning Policy for Waste states that when determining planning applications for non-waste developments, Local Authorities should ensure that:

- *"the likely impact of proposed, non-waste related developments on existing waste management facilities, and on-sites and areas allocated for waste management, is acceptable and does not prejudice the implementation of the Waste Hierarchy and/or the efficient operation of such facilities";*

- *"new, non-waste developments make sufficient provision for waste management and promote good design to secure the integration of waste management facilities with the rest of the development and, in less developed areas, with the local landscape. This includes providing adequate storage facilities at residential premises, for example, by ensuring that there is sufficient and discrete provision for bins, to facilitate a high quality, comprehensive and frequent household collection service"; and*

- *"the handling of waste arising from the construction and operation of development maximises reuse/recovery opportunities and minimises off-site disposal."*

Regional Policy

The London Plan

2.8. The London Plan (2021) contains policies which are relevant to waste and are outlined below:

2.9. Policy SI 8 Waste capacity and net waste self-sufficiency, which states: *"Mayoral Development Corporations must cooperate with host boroughs to meet identified waste needs"*.

2.10. Policy SI 7 Reducing waste and supporting the circular economy, which states: *"Resource conservation, waste reduction, increases in material re-use and recycling, and reductions in waste going for disposal will be achieved by the Mayor, waste planning authorities and industry working in collaboration to:*

1. *promote a more circular economy that improves resource efficiency and innovation to keep products and materials at their highest use for as long as possible;*

2. *encourage waste minimisation and waste prevention through the reuse of materials and using fewer resources in the production and distribution of products;*

3. *ensuring that there is zero biodegradable or recyclable waste to landfill by 2026;*

4. *meet or exceed the municipal waste recycling target of 65 per cent by 2030"*.

2.11. Paragraph 9.8.7 of the London Plan states: *"Boroughs should examine in detail how capacity can be delivered at the local level and demonstrate how this can be provided for through the allocation of sufficient sites and the identification of suitable areas in Development Plans to meet their apportionment, and should aim to meet their waste apportionment as a minimum. It may not always be possible for boroughs to meet their apportionment within their boundaries and in such circumstances boroughs will need to agree the transfer of apportioned waste. Where apportionments are pooled, boroughs must demonstrate how their joint apportionment targets will be met, for example through joint waste Development Plan Documents, joint evidence papers or bilateral agreements*."

2.12. Paragraph 9.8.8 of the London Plan states: *"Mayoral Development Corporations (MDCs) must cooperate with host boroughs to meet identified waste needs; this includes boroughs' apportionment requirements. This could be widened to cover boroughs in the relevant waste planning group where appropriate. In future iterations of the Plan full consideration will be given to apportioning waste needs to MDCs*."

The Mayor's Business Waste Management Strategy (2011)

2.13. In addition to the policies outlined in the London Plan, the Business Waste Management Strategy provides further policy guidance on the management of business waste. It sets out initiatives to help London businesses (including shops, restaurants and offices) save money and reduce harm to the environment through better waste management practices. The strategy is aimed at encouraging waste reduction and promoting better re-use and recycling from commercial activities. It looks to improve the efficiency of resource management and reduce the financial and

environmental impact of waste by managing as much as is practical within the London boundaries.

The Mayor's Municipal Waste Management Strategy (2011)

2.14. The Mayor's Municipal Waste Management Strategy provides further policy guidance on the management of municipal waste, in addition to policies contained within the London Plan. The strategy sets six targets, which aim to reduce the amount of municipal waste generated by the capital and significantly increase recycling and composting performance. The strategy goes on to explain that municipal waste which cannot be re-used or recycled will be used to produce EfW in the most environmentally sensitive way possible.

Local Policy

South East London Joint Waste Planning Technical Paper (January 2020)

2.15. Section 4.38 states that LBB is committed to 'preventing waste at the source, enhancing recycling services, maximising the value of the remaining waste, driving efficiencies across the service and engaging communities'. The borough will be regularly reviewed to ensure they achieve their sustainable objectives.

LBB 'Core Strategy' (February 2012)

2.16. Policy CS20: 'Sustainable Waste Management' sets out policies and directives for the borough to ensure land resources are available to implement European and government policy on waste by 'meeting its waste apportionments and other requirements such as the Mayor's recycling pr composting targets, including collaboration with other London boroughs' and 'setting out criteria for development of new waste management facilities'.

2.17. Part 4.11.10 states 'when addressing the management of waste for new development, the focus is on accommodating space for waste, including the sorting of waste within the scheme design and well designed communal areas where waste can be collected'.

Bexley Local Plan (April 2023)

2.18. Policy DP26 'Waste Management in New Development' which states that residential developments should have 'adequate space within each unit for the temporary storage of waste for the separate storage of recyclable materials.' Also 'storage and collection got waste are of high-quality design and ensure there is adequate access for residents and waste collection operatives to achieve London Plan Waste Management targets.'

3. Existing Conditions and Site Description

3.1. The site is located to the south of Yarnton Way within the northern extents of Belvedere. The site comprises of the former SGN Gas Holder Station, which is not currently in operation and the site has been vacant for a number of years. The site is bound by Yarnton Way to the north, a railway line to the south, residential properties to the east, and commercial/industrial units to the west. The location of the site in the context of the surroundings is shown in **Figure 3.1**.

Figure 3.1: Site Location Plan

3.2. Despite the current industrial nature of the site itself, a large amount of the surrounding area comprises residential development, plus associated local facilities including schools, leisure, rail services and shopping areas.

Site Access

3.3. There are two existing vehicular access points to the site, one via Yarnton Way to the north and the other at the western end of Sutherland Road to the east. The existing vehicle access point onto Yarnton Way is in the form of a gated access priority-controlled T-junction and does not benefit from a turning lane for traffic

turning right into the site approaching from the west. It does however have a break in the carriageway that allows right turns into and out of the site. The access via Sutherland Road is also controlled by a gate.

Local Highway Network

Yarnton Way

3.4. Yarnton Way is a classified highway and is defined as a Borough Distributor Road in the Council UDP road hierarchy. It is a street-lit dual carriageway and is subject to a 30mph speed limit. Yarnton Way is a dual carriageway road with east-west alignment along the northern site boundary. It has two 3.5 metre wide lanes each direction and a 4.5 metre tree-lined central reserve.

3.5. Yarnton Way connects to the wider highway network via the A2041, linking to Eastern Way (A2016), linking the site to Plumstead, Greenwich and Woolwich in the west via the A206. To the west the A206 provides access to Dartford and northeast Kent.

Maida Road and Sutherland Road

3.6. Maida Road and Sutherland Road are both residential cul-de-sacs located to the east of the development running on a roughly east-west alignment. Both roads are part of the adopted highway network and benefit from footways and street lighting. Parking is unrestricted on both roads, aside from spaces specifically designated for disabled parking.

4. Proposed Development

4.1. The redevelopment of the site will result in the construct 392 residential units, 202.52sqm of commercial floor space and 90.90sqm of private gym use in new buildings ranging between 3 to 5 storeys in height, together with associated car parking and cycle storage, landscaping including new areas of public open space and a reptile retention zone.

4.2. A site layout plan has been prepared which is included in **Appendix A**, with an extract of the plan also shown within **Figure 4.1** below. **Figure 4.1** shows the internal road layout, which has been designed to suitably accommodate a refuse vehicle.

Figure 4.1: Proposed Site Layout

Access

4.3. Vehicular access and vehicular egress will be provided via Yarton Way to the site, with pedestrian/cycle route provided to the east via Maida Road and an emergency access via Sutherland Road to the east controlled by bollards, primarily used as a pedestrian and cyclist access to the site.

Servicing & Deliveries

4.4. With respect to servicing and waste collection, the largest vehicle that would be likely to serve the proposed residential dwellings on a regular basis would be a refuse collection vehicle. Section 6.8 of Manual for Streets confirms that refuse workers should have to walk no further than 25 metres from the refuse vehicle to collect 2-wheeled containers, or 10 metres for four-wheeled containers. In terms of refuse collections, all waste for the apartment blocks will be located a bin store and the bins for the houses will be located in individual bins within the secure area at the front of the units.

4.5. Bins for the apartment blocks shall be collected from the internal bin stores with the refuse vehicle parking generally within 10 metres of the stores, using internal turning areas if required. Dropped kerbs are to be located near to the entrance of bin stores to accommodate bin manoeuvres between the store and vehicle itself. For the houses, bins will be dragged by residents from the secure area at the front of the property close to the edge of the carriageway for the refuse workers to collect the bins within minimal distances. For the houses located on the eastern side of the site, bins will be located at the front of the properties and refuse works will not have to walk further than 25 metres from the refuse vehicle.

4.6. **ACE Drawing Number 194180-D015** demonstrates that a large refuse vehicle (with comparable dimensions to LBB's refuse vehicle) would be able to service the site externally from Yarnton Way for Block C and internally within the site for the remaining units. The swept path analysis has been undertaken to show that the vehicle can enter the site from Yarnton Way and generally manoeuvring within 10 metres of the bin stores for the apartment blocks and within 25 metres for the houses and exit onto Yarnton Way in a forward gear without conflict.

5. Waste Management Strategy Methodology

5.1. The following strategy has been derived based on LBB rubbish and recycling policies and the requirements of BS5906:2005 and document H6 of the Building Regulations.

Residential Waste

5.2. LBB's rubbish and recycling policies primarily focuses on the types of bins which will be provided by LBB for the residential and commercial units. For the residential houses Policy 1a 'Collection containers' of LBB's 'Household Waste and recycling collection policy' provides guidance on the bin types and quantities which should be provided for each house. The guidance states the following:

5.3. 'All low-rise properties across Bexley have access to recycling and residual waste collection' with the bin types and quantities provided explained below.

Standard residual waste:

- 1 x 180- litre green wheeled bin – waste which cannot be recycled

Standard recycling waste:

- 1 x 180- litre green wheeled bin with a blue lid- for paper and cardboard waste;
- 1 x 240- litre green wheeled bin with a white lid- for plastic, tins, cans, glass waste; and
- 1 x 23- litre brown food waste box with a 10-litre kitchen caddy to provide storage in kitchen.

Optional (if pre-paid)

- 1 x 240-litre brown wheeled bin for garden waste

5.4. As shown within the site layout plan contained in **appendix A**, each house will have three bins located within a secure area at the front of each property, in line with the above guidance.

5.5. However, for the apartment blocks and commercial aspect of the site, LBB's rubbish and recycling policies outlines the bin sizes which are available for these uses but does not specify the exact number or type which should be provided. These bins will be located within shared waste storage facilities for each block. The number and type of bins provided will be dependant upon the number of properties located within the block and the facilities available at the time. The bin sizes which are available are as follows:

- 1100- litre Eurobins; and
- 1280-litre Eurobins.

5.6. To calculate the number of bins required for each apartment block, the BS 5906:2005 guidance Table 1 has been used to estimate the amount of weekly recyclable and residual waste for each block. Table 1 assumed that for a 3-bedroom unit would generate approximately 240 litres of weekly waste, with a 50% split between recycling and residual waste. The guidance assumes 30 litres of waste per unit + 70 litres per bedroom. This guidance has been used to calculate the amount of waste produced per block for the flats, in accordance with the current schedule of accommodation, outlined within **Table 5.1**.

Unit Mix	Number of Units	Waste (Litres)		Total Waste (7-day week)
		Recyclable 50%	Residual 50%	
Block A1				
1-Bedroom – 100L per unit	2	100	100	200
2 Bedroom – 170L per unit	4	340	340	680
Total (7-day week)	**6**	**440**	**440**	**880**
Block A2				
1-Bedroom – 100L per unit	2	100	100	200
2 Bedroom – 170L per unit	4	340	340	680
Total (7-day week)	**6**	**440**	**440**	**880**
Block A3				
1-Bedroom – 100L per unit	2	100	100	200
2 Bedroom – 170L per unit	4	340	340	680
Total (7-day week)	**6**	**440**	**440**	**880**
Block A4				
1-Bedroom – 100L per unit	2	100	100	200
2 Bedroom – 170L per unit	4	340	340	680
Total (7-day week)	**6**	**440**	**440**	**880**
Block A5				
2 Bedroom – 170L per unit	3	255	255	510
3 Bedroom – 240L per unit	3	360	360	720
Total (7-day week)	**6**	**615**	**615**	**1230**
Block B1				
1-Bedroom – 100L per unit	7	350	350	700
2 Bedroom – 170L per unit	11	935	935	1,870
3 Bedroom – 240L per unit	14	1,680	1,680	3,360
Total	**32**	**2965**	**2965**	**5,930**
Block B2				
1-Bedroom – 100L per unit	5	250	250	500
2 Bedroom – 170L per unit	10	850	850	1,700
3 Bedroom – 240L per unit	14	1,680	1,680	3,360
Total	**29**	**2780**	**2780**	**5,560**
Block C1				
1-Bedroom – 100L per unit	9	450	450	900
2 Bedroom – 170L per unit	7	595	595	1,190
3 Bedroom – 240L per unit	4	480	480	960
Total	**20**	**1,525**	**1,525**	**3,050**
Block C2				
1-Bedroom – 100L per unit	9	450	450	900
2 Bedroom – 170L per unit	7	595	595	1,190
3 Bedroom – 240L per unit	4	480	480	960
Total	**20**	**1525**	**1525**	**3,050**
Block E1				
1-Bedroom – 100L per unit	10	500	500	1,000
2 Bedroom – 170L per unit	18	1,530	1,530	3,060
Total	**28**	**2030**	**2030**	**4,060**
Block E2				
1-Bedroom – 100L per unit	13	650	650	1,300
2 Bedroom – 170L per unit	15	1,275	1,275	2,550
Total	**28**	**1925**	**1925**	**3,850**
Block E3				
1-Bedroom – 100L per unit	10	500	500	1,000
2 Bedroom – 170L per unit	18	1,530	1,530	3,060
Total	**28**	**2030**	**2030**	**4,060**
Block E4				
1-Bedroom – 100L per unit	13	650	650	1,300
2 Bedroom – 170L per unit	15	1,275	1,275	2,550
Total	**28**	**1925**	**1925**	**3,850**
Block E5				
1-Bedroom – 100L per unit	10	500	500	1,000
2 Bedroom – 170L per unit	18	1,530	1,530	3,060
Total	**28**	**2030**	**2030**	**4,060**
Block E6				
1-Bedroom – 100L per unit	13	650	650	1,300
2 Bedroom – 170L per unit	15	1,275	1,275	2,550
Total	**28**	**1925**	**1925**	**3,850**
Block F				
1-Bedroom – 100L per unit	7	350	350	700
2 Bedroom – 170L per unit	11	935	935	1,870
Total	**18**	**1285**	**1285**	**2,570**
Total	**317**	**24320**	**24320**	**48,640**

Table 5.1: Waste Quantity Calculations

5.7. **Table 5.1** outlines that the overall 317 flats could result in a total of 24,320 litres of general waste and 24,320 litres of recyclable waste during a 7-day week. This equates to a requirement of 22 1,100L general waste bins and 22 1,100L recyclable waste bins for the overall 317 proposed flats.

5.8. Policy 5 'collection frequency' outlines the frequency of the waste collection with standard bins mostly collected on a weekly basis except for garden waste which is collected fortnightly. The communal waste is usually collected at the same frequency, however residual waste and recycling may be collected fortnightly depending on the property.

Bulky Waste

5.9. Bulky waste can be collected by LBB however, residents will be charged. All items must be presented outside for collection by 6.30am on the specified day of collection. All items should be left together to the edge of the property boundary, as close to the highway as possible, easily accessed and not a hazard to the public. Apartments should agree with LBB the collection point before collection. Space within the bin stores and external areas are available to hold these items for collection. A number of bin stores have sufficient space to accommodate bulky items.

5.10. If these measures are not in place, then LBB may not be able to undertake collections requested by residents, and the site managers will be required to make alternative commercial arrangements to have bulky items removed.

Commercial Waste

5.11. At this stage the specific end users of the proposed commercial units are unknown. Therefore, the typical waste demands cannot be determined. Within lease documents, suitable waste and recyclable procedures shall be included and they will be included within their private collection contracts.

Internal Design

5.12. The internal and external site areas have been designed to the Approved Part M 2010 (2015 edition incorporating 2016 amendments). This includes suitable gradients for

residents and management groups to ease the movement of refuse bins between the residential units, bin stores and service vehicles.

5.13. Each residential unit, core and floor within the building has been designed to minimise refuse carry distances for residents, and no resident is required to exceed the carry distance of 30m to bring waste from their unit to the bin storage/holding area. For the apartment blocks, the bin stores are located within an acceptable carry distance to service vehicle pick up points.

5.14. The bin stores within **Figure 5.1** will be suitable to accommodate the correct number of Euro Bins (1,100L).

5.15. All refuse, recycling and waste should be stored in sealed containers within the refuse storage areas for the apartment blocks or within the curtilage of the houses. Sufficient space will be provided for waste and recycling storage for all of the residential and commercial units.

6. Completed and Operational Waste Management

Residential Waste Generation

6.1. As highlighted at Section 5.0, the residential waste generated by the development has been calculated in accordance with LBB's 'Household waste and recycling collection policies' and BS 5906:2005 guidance. As highlighted above the 75 houses are expected to have one bin collected weekly, with the apartments expected to have 36 bins collected on a weekly basis.

Waste / Recycling Storage Requirements

6.2. In line with Part H6 of the Building Regulations and LBB guidance, the following measures for the apartment blocks have been designed into the development scheme, to ensure compliant waste strategy.

- All bins will be accessible within the waste store;
- Waste storage facilities will not block any service points;
- Bin storage areas will not obstruct sight lines for pedestrians, drivers and cyclists;
- Stores are designed and located to avoid noise disturbance;
- Signage detailing correct use of the facilities;
- Waste storage areas will be of adequate height to allow containers to be opened;
- Suitable separation shall be provided between walls and bins;
- The entrance of the waste room will be step free;
- The total horizontal carry distance a resident will be required to carry waste from their dwelling to the waste storage room will not exceed 30m;
- Storage areas for recyclable and waste material will be clearly designated for this use only;
- Suitable ventilation and drainage shall be built;
- Colour coding will be used for bins of different streams;
- The waste room will have adequate lighting, proper ventilation and wash down facilities;
- Where accessible from the street, waste stores should be provided with a lockable door;

- Any internal storage areas adjacent to a fire escape route and facilities; and
- Information packs will be provided to residents and will include full information on available recycling facilities.

Waste and Recycling Storage Strategy

6.3. As shown on the ground floor masterplan (**Appendix A**), the development is set to provide a total of 57 '1,100L Euro Bins' to serve the flats, along with 75 '180 litre two wheeled recyclable bins', 75 '240 litre two wheeled recyclable bins' (includes glass), 75 '180 litre two-wheeled general waste bins' and 75 '23 litre food waste bins' to serve the houses.

6.4. It is considered that the level of bins provided on-site sufficiently accommodates the likely recycle/waste demands of the proposed residential uses and should therefore be acceptable.

6.5. However, to understand demands and any shortfall/overprovision for the apartments, residential waste arisings have been calculated, as outlined above. In order to provide adequate storage space for residential waste, the total amount of storage space to be provided has been based on a seven-day week.

6.6. **Table 5.1** outlines that the overall 317 flats could result in a total of 24,320 litres of general waste and 24,320 litres of recyclable waste during a 7-day week. This equates to a requirement of 22 1,100L general waste bins and 22 1,100L recyclable waste bins for the overall 317 proposed flats.

6.7. However, as shown within the site layout plan, the 317 apartments are served by a total of 57 1,100L bins. Of these, 29 shall be used for recyclable waste and the remaining 28 for general waste. This clearly exceeds the above amount of calculated waste and should therefore be considered as sufficient to serve the proposed flats aspect of the development. However, it is noted that there is sufficient scope within a number of communal bin stores to add additional bins if required in the future.

Waste and Recycling Collection Requirements

6.8. In line with Building Regulations Part H6 and the Manual for Streets guidance, the following collection requirements have been designed into the Proposed Development:

- All paths used to transport bins from the storage area to the collection point will have a minimum width of 2m, be free from kerbs or steps, have a solid foundation and be finished with a smooth, continuous finish;
- Where reversing is required, the collection vehicle will not be expected to reverse more than 12m;
- It is required that vehicles are able to enter and exit the development (to leave or re-join the highway) in a forward gear;
- All roads and approaches to buildings or refuse storage areas will be level unless the slope falls away from the storage area at a gradient no steeper than 1:12 and a suitable cross-over must be constructed over any public footway;
- External waste collection operatives will not be required to transport Euro Bins more than 10m in total to the collection vehicle;
- External waste collection operatives will be required to transport two-wheeled bins no more than 25m in total to the collection vehicle;
- Collection points are at street level and within 10m of the nearest stopping point for refuse collection vehicles; and
- Collection points, either incorporated into the building or roadside, will be able to accommodate LBB's largest refuse vehicle.

10.1. **ACE Drawing Number 194180-D015** demonstrates that a large refuse vehicle (with similar dimensions to LBB's refuse vehicle) would be able to service the site externally from Yarnton Way for Block C and internally within the site for the remaining units. The swept path analysis has been undertaken to show that the

vehicle can enter the site from Yarnton Way and generally manoeuvring within 10 metres of the bin stores for the apartment blocks and within 25 metres for the houses and exit onto Yarnton Way in a forward gear without conflict.

7. Summary and Conclusions

7.1. Ardent Consulting Engineers (ACE) were appointed by Bellway Homes Limited to prepare a Waste Management Plan (WMP) for the proposed redevelopment of the site to provide residential units including affordable housing (Use Class C3) and commercial floorspace (Class E) in new buildings ranging between 3 to 5 storeys in height, together with associated car parking and cycle storage, landscaping including new areas of public open space and a reptile retention zone, associated infrastructure including new junctions off Yarnton Way, drainage and land raising, (hereafter known as 'the site').

7.2. The formal site description is as follows:

"Redevelopment of the site to provide residential units including affordable housing (Use Class C3) and commercial floorspace (Class E) in new buildings ranging between 3 to 5 storeys in height, together with associated car parking and cycle storage, landscaping including new areas of public open space and a reptile retention zone, associated infrastructure including new junctions off Yarnton Way, drainage and land raising".

7.3. This Site Waste Management Plan (SWMP) has been produced for submission to London Borough of Bexley (LBB), who act as the local planning authority. In addition, Transport for London (TfL) is a statutory consultee given the scale of the development proposal and they are responsible for roads in the surrounding area.

7.4. In line with the latest Part H6 of the Building Regulations and national and local guidance, the proposed scheme includes a number of measures to ensure a compliant waste strategy. These include the following:

- All bins will be accessible within the waste store;
- Waste storage facilities will not block any service points;
- Bin storage areas will not obstruct sight lines for pedestrians, drivers and cyclists;
- Stores are designed and located to avoid noise disturbance;
- Signage detailing correct use of the facilities;

- Waste storage areas will be of adequate height to allow containers to be opened:
- Suitable separation shall be provided between walls and bins
- The entrance of the waste room will be step free;
- The total horizontal carry distance a resident will be required to carry waste from their dwelling to the waste storage room will not exceed 30m;
- Storage areas for recyclable and waste material will be clearly designated for this use only;
- Suitable ventilation and drainage shall be built;
- Colour coding will be used for bins of different streams;
- The waste room will have adequate lighting, proper ventilation and wash down facilities;
- Where accessible from the street, waste stores should be provided with a lockable door; and
- Any internal storage areas adjacent to a fire escape route and facilities;
- Information packs will be provided to residents and will include full information on available recycling facilities.

7.5. Bin quantities for the proposed houses on-site are based on the requirements within LBB's rubbish and recycling policies. This requires a total of 57 '1,100L Euro Bins' to serve the flats, along with 75 '180 litre two wheeled recyclable bins', 75 '240 litre two wheeled recyclable bins' (includes glass), 75 '180 litre two-wheeled general waste bins' and 75 '23 litre food waste bins'.

7.6. Waste demands for the 317 flats at the site have been calculated using industry standard methodology. This has been assessed against the total number of bins provided at the site. The assessment within shows that the overall residential aspect of the development is likely to require a total of 44 Euro Bins (1,100L) for both general and recyclable combined. However, the proposed scheme is to provide a total of 57 Euro Bins (1,100L). Therefore, it is considered that the level of bins provided on-site sufficiently accommodates the likely recycle/waste demands of the proposed residential flat uses with spare to accommodate and should therefore be acceptable.

7.7. Commercial waste will be managed by the commercial operator – once known. The systems can be written into any lease agreements to ensure compliance.

7.8. A number of processes have been identified within this report to ensure a coherent and sustainable waste management system is implemented and maintained at the site. This is to be largely managed by the internal site management teams. These systems and the internal building designs have been identified in line with latest policy and design guides, and should therefore be acceptable.