D6

Landscaping

keltbray

Former MSD Facility
Breakspear Road South, Ickenham

D7.01 Proposed Landscape

The opportunity to enhance the site's landscaped areas has been a key consideration at the forefront of the design development. It results in a landscape focused proposal which maximises the opportunities of the site and the Green Belt.

The landscape proposals seek to respond to their context that is within the wider landscape of the Colne Valley Regional Park and the Borough of Hillingdon. The main landscape aspects aim to reinforce the existing character of the surrounding landscape. This is defined by the field boundaries of mature trees and areas of woodland that serve as green corridors.

Rich wildflower species is proposed within road verges and around the edges of the site to enhance biodiversity with the addition of wetland wildflower mixes and marginal planting within SuDS (Sustainable Drainage Systems) features. Additional understory planting will supplement the existing scrub on the site. This will be predominantly native species.

New specimen tree planting is proposed in the locations shown which are native species of local provenance.

To the north of the site, the existing woodland is retained and managed as part of the proposals seeking opportunities for habitat creation and amenity open space.

External amenity and breakout space is provided to support the high quality office space in building 1. Amenity open space would include seating opportunities that is situated in a visually appealing landscape setting.

The SuDS scheme has been developed to enhance biodiversity as much as possible. An attenuation pond at the site entrance will encourage habitat creation with planted native, marginal plants and wetland wildflower. Thus, the proposal seeks to enhance biodiversity where it is possible with mown lawn only proposed in areas of amenity open space.

Refer to Landscape Architects, Open's report for further detailed information.

Fig D7.01 Proposed Landscape Illustration.

D7.02

Proposed Landscape

Fig D7.02 Design Principles; extract from "Landscape Report (September 2022)" by Optimised Environments Ltd (OPEN).

D7.03 Biodiversity Enhancements

Brindle & Green Ecological Consultants were instructed to assess the existing ecological and biodiversity situation on site and to give advice on opportunities, to not only maintain but provide opportunities enhance and promote biodiversity on site.

Surveys of the existing site confirmed that habitats exsted and would potentially be negatively affected by the proposed development. A number of mitigation measures are being been considered to safeguard the status of these protected and notable species.

The proposed implementation of enhancements such as bat boxes, planting of native species & hibernacula will secure positive gains to local biodiversity when compared to the baseline ecological conditions of the site.

The adjacent image illustrates a framework level approach to biodiversity across the site. Existing green corridors have been retained and enhanced.

Screening woodland around the north and west of the site connects to the existing woodland to form a wildlife corridor around the edge of the site that connects into the surrounding landscape context.

The proposed green network will be planted with native tree and shrub species, caefully selected to enhance biodiversity across the site and to promote pollinator species. The construction of waterbodies throughout the site will further improve the structural and botanical diversity on site for a number of local species populations.

Refer to Brindle & Green's Ecological Impact Assessment, dated September 2022 for further detailed information.

D7.03 Proposed Site plan and its proposed illustrative biodiversity framework;
extract from "Landscape Report (September 2022)" by Optimised Environments Ltd (OPEN).

D7.04

Landscape Progression with HS2 Line

Fig. D7.04 Proposed Site Illustration (existing context)

Fig. D7.05 Site within completed HS2 works (future context)

The above comparative imagery illustrates the site proposals within the current context of HS2 construction adjacent to the site alongside the future context of the proposals within the wider context of the completed HS2 works. Whilst there is only heavy construction currently visible within the environs of the site, the future position, once all HS2 works have been completed, offers defined and extensive areas of new tree planting and other screening of the site. It highlights the lack of visual connectivity into the subject lands from surrounding areas.

D7

Energy & Sustainability Strategy

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Former MSD Facility
Breakspear Road South, Ickenham

D8.01 Energy Strategy

Aim

The aim of this Energy Strategy is to detail a robust energy demand reduction and supply strategy to enable the Development to meet the policy targets.

Approach

This Energy Strategy follows the Mayor of London's energy hierarchy: 'Be Lean, Be Clean, Be Green'.

The strategic approach to the design of the Development has been to reduce demand for energy prior to the consideration of integrating Low or Zero Carbon (LZC) technologies, since controlling demand is the most effective way of reducing energy requirements and CO2 emissions.

Calculations demonstrating the energy requirements and associated CO2 have been carried out using Building Regulations approved software.

Energy Strategy

This strategy summarises the relevant planning policies and requirements applicable to the Development in relation to energy and carbon emissions. Of these, the main target is to achieve a reduction in regulated CO2 emissions of 35% or greater beyond the requirements of the Building Regulations Part L on site and 'Zero Carbon' (100% reduction in regulated CO2 emissions with carbon offsetting) as set out in the GLA guidance on preparing energy assessments and the GLA Sustainable Design and Construction SPG.

Appraisals

The Development has been assessed to determine the estimated regulated energy requirements and associated carbon emissions.

Be Lean

A range of passive design and energy efficiency measures have been incorporated into the Development to optimise the balance between beneficial winter solar gains and summer comfort, while maximising internal daylight levels. These include:

- Suitable glazing ratio and glass g-value to balance heat losses, heat gains and daylight ingress.
- Fabric insulation levels achieving improvements over Building Regulations Part L (2021) minimum standards.
- Fabric air permeability improvement upon Building Regulations Part L (2021) minimum standards.
- Insulated pipework and ductwork (and air sealing to ductwork) to minimise losses and gains.
- Variable speed pumps and fans to minimise energy consumption of services distribution.

It is anticipated that these measures will achieve a 15% reduction in site-wide regulated CO2 emissions beyond the requirements of the Building Regulations Part L (2021) 'baseline'.

Therefore, the Development is anticipated to achieve carbon emissions below the Building Regulations Part L (2021) baseline, through passive design and energy efficiency measures, i.e. before the inclusion of any Low or Zero Carbon (LZC) technologies.

Be Clean

No existing heat network is available for consideration. Therefore, the reduction remains the same as seen in "Be Lean". Communication has been initiated with the London Borough of Hillingdon to confirm the lack of existing networks.

Be Green

An all-electric heat pump solution is being implemented in line with the decarbonisation of the grid and provides a 50% reduction in carbon emissions.

The use of all electric heat pump plant will mean there is no onsite combustion of fossil fuels meaning there will be no air quality impact from the heating systems and as a result the site will meet GLA energy assessment guidance on NOx emissions.

The potential for incorporating further renewable energy systems will be reviewed, however this is expected to lead to limited CO2 savings. In order to follow the mayor's energy hierarchy, priority will be given to systems that would not displace loads from heat pump systems.

Beyond Part L compliance and regulated emissions, opportunities will be sought to encourage a reduction of non-regulated emissions in practice through measures such as metering, displays and controls.

Combining the lean and green savings gives rise to an overall reduction in regulated carbon emissions of 65% for the site.

Be Seen

Metering provisions are confirmed in this report. Data will be gathered at PC and annually in operation for at least 5 years. The operator will either seek permission to gather aggregated metered data on a yearly basis or; The operator will gather data from an upstream meter, with the permission and assistance of the DNO. The operator will provide data as required and upload to the GLA's portal at appropriate stages.

D8.02

Energy Strategy

Policies, Guides and Regulations

Current Policy Framework

The policies considered when preparing this strategy are contained in the London Plan (Greater London Authorities (GLA)) and the Local Plan documents of the London Borough of Hillingdon.

Building Regulations Part L 2021

This Energy Strategy follows the Mayor of London's energy The assessment of the Development against policy targets has been carried out using Part L 2021 benchmarks.

The Building Regulations Part L (2021) requires that the building as designed is not anticipated to generate CO2 emissions in excess of that set by a Target Emission Rate (TER) calculated in accordance with the approved National Calculation Methodology (NCM). Upper limits are placed on the efficiency of controlled fittings and services for example, an upper limit to an external wall U-value of 0.26W/m2.K (new non-domestic buildings). The Building Regulations Part L (2021) also requires that spaces are not subject to excessive solar gains. This is demonstrated using the procedure given in the National Calculation Methodology.

The London Plan

Summary of London Plan policies for energy and CO2 emissions. Policy S12 Minimising Greenhouse Gas Emissions

- Major development to be Net Zero Carbon (taken to mean a 100% reduction in regulated CO2 emissions from the relevant Building Regulations baseline).
- Minimum 35% on-site emissions reduction.
- Minimum 15% commercial / 10% residential reduction in regulated CO2 through energy efficiency measures (Be Lean stage).
- Demonstrate a pathway to Zero Carbon by 2050.

Overheating

Overheating assessment has been carried for block 1 office areas using TM52 criteria. Warehouse spaces are not intended to be occupied for extended periods. Warehouse welfare facilities and the office development have had overheating analysis carried out.

Summary

The analysis concluded that Breakspear road development could achieve compliance with TM52 when cooling is applied with a set point of 24 degrees. Ultimately cooling is provided to all spaces due to market expectations and intended use / density and as such comfortable conditions will always be achieved.

Passive Design Measure to reduce Energy Demand, Overheating Risk and Cooling Demand

Passive design measures are those which reduce the energy demand within buildings without consuming energy. These are the most effective and long-lasting measures for reducing CO2 emissions as the performance of the solutions (e.g. insulation), is unlikely to deteriorate or be subject to change.

Glazing Ratio

The Development has taken a 'fabric first' approach to reducing energy demand and CO2 emissions. Glazing ratio has been optimised to achieve a balance between providing natural daylighting to reduce the use of artificial lighting, the provision of passive solar heating to limit the need for space heating in winter and limiting summertime solar gains to reduce space cooling demands and limit the likelihood of high internal temperatures. Glazing on the south, east and west facing facades can lead to beneficial solar gains in winter months, whilst glazing on northerly orientations will typically loose heat.

D8.03

Energy Strategy

Policies, Guides and Regulations

Glazing Energy and Light Transmittance

In designing the elevations with an appropriate approach to fenestration, the design team has also been mindful to balance the solar energy transmittance and light transmittance values of the glass, to control solar gains and to maximise daylight respectively. Solar gains can be beneficial in winter months as a means of avoiding the need for active heating to maintain comfortable internal temperatures. However, in summer months excessive solar gains can lead to the potential for uncomfortably high internal temperatures. In tandem with the glazing ratio targets, the solar energy transmittance (g-value) of the glass has been targeted to allow solar gains in winter but control solar gains in summer. An initial value of 0.3 is targeted i.e. transmitting 30% of the incident solar heating gains into internal spaces respectively. As such, the g-value and the glazing ratio currently being considered are not anticipated to have a significant detrimental effect on daylight ingress, allowing natural light to penetrate the building to limit the demand for lighting.

Lighting

Energy efficient lighting will be provided throughout where possible. External lighting will also be energy efficient and will be linked to daylight sensors and presence detectors to prevent unnecessary use (where appropriate). As well as reduced energy requirement that would be achieved by implementing these lighting measures, the contribution to the ventilation requirements may also be reduced by limiting heat gains. This would further reduce the total energy requirements and CO2 emissions of the building.

Ventilation

Ventilation will be provided by mechanical ventilation with heat recovery. Purge ventilation is also achieved by openable windows. Ventilation is important to maintain good indoor air quality by providing fresh air and extracting stale air. Ductwork will be rigid type, circular wherever possible, with minimal flexible ductwork (for connections only).

Metering and Controls

It is the intention that meters will be provided to each block so that occupants can monitor and manage their energy use for heating, cooling and hot water as applicable. Metering provisions will enable whole building data to be logged and reviewed (this would enable monitored data to be provided to the Local Authority as required). Logging provisions should be able to store at least 5 years' worth of data.

Circular Economy

Through workshops the design team have developed the following aspirations:

- Pre demolition audit to be carried out. In line with Wst 01 guidance.
- Operational and construction waste targets to be set and space provided for segregation of waste in line with Wst 03 guidance.
- Materials to be responsible sourced Including 100% FSC timber and target 50% responsibly sourced major materials.
- Materials with EPDs will be preferred.
- Steel to be recycled where possible and new steel to have a high recycled content.
- Design will be influenced by disassembly and adaptability principles in line with Wst 06 guidance.
- Priority given to locally sourced materials.
- Achieve at least 20% by value recycled content for the whole building.
- >95% target for construction and excavation waste to be reused or recycled

D8.04

Proposed Drainage

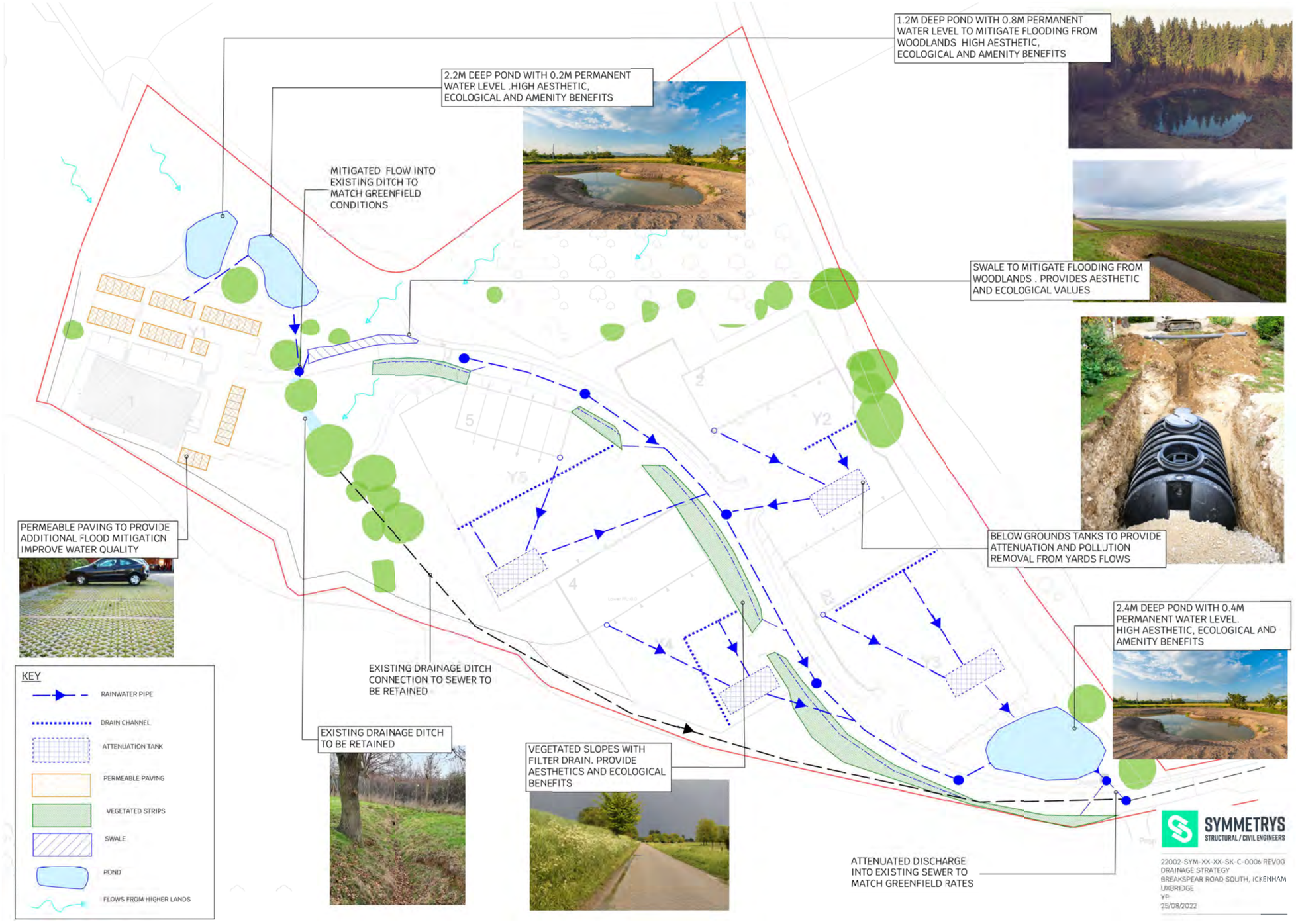

Fig. D8.01 Proposed Site plan and its proposed strategic approach.