ONE MILLENNIUM BRIDGE

ESG DOCUMENT

ONE MILLENNIUM BRIDGE IS A NEXT GENERATION RIVERSIDE OFFICE DEVELOPMENT

The building has been designed with sustainability and wellbeing at the forefront of the development process. This has ensured that the building reduces its impact on the environment and maximised wellness for future occupants.

ONE MILLENNIUM BRIDGE WILL ACHIEVE **AN EPC RATING OF B** BASED ON COMPLETION TO SHELL AND CORE, AN **EPC RATING OF A** IS ACHIEVABLE DEPENDING ON TENANT DESIGN OF THE **CATEGORY A WORKS INSTALLED**

CARBON **EMISSIONS**

One Millennium Bridge will achieve a 61% reduction in CO2 emissions over the baseline building (48% of which is through energy efficiency measures). This significantly exceeds the 35% carbon emissions reduction target over baseline, as per the London Plan. This is achieved by using a combination of the following energy efficiency measures and low /zero carbon technologies:

– The energy strategy is a 100% electric solution, with no gas on-site used to heat or cool the building further reducing carbon emissions.

– Best practice building fabric properties for new thermal elements.

– Low g-value glazing to reduce solar gains entering the building and hence the cooling demand, whilst also achieving good daylight transmittance.

– High efficiency mechanical ventilation with heat recovery.

– Energy efficient light fittings and controls.

– Energy efficient regenerative lifts.

– High efficiency water cooled chillers in conjunction with low temperature hot water (LTHW) storage and chilled water storage (thermal storage solution) which enables waste heat generated in the building to be used to provide heating.

– The integration of thermal storage results in the reduction of peak loads and energy consumption for heating and cooling and the associated CO2 emissions.

AIR CONDITIONING

The heating and cooling strategy has been designed to provide appropriate thermal comfort levels and allow independent adjustment of heating within each occupied space based on current and future projected weather data.

This will be achieved using a thermal storage system which utilises rejected heat from the cooling plant that is captured as energy in a thermal energy store (essentially a large thermal energy battery) which absorbs or gives up heat over time to heat or cool the building. Water is contained in insulated water storage tanks in the basement.

The sizing of these systems has been designed to meet daily peak cooling or heating loads. The charging of the tanks can be done during off-peak electricity tariffs, further reducing overall energy costs and consumption.

This has also resulted in the total absence of rooftop heat rejection plant, freeing up 25,000 sq ft for private gardens and public amenities including a public viewing gallery and restaurant. The integration of thermal storage results in the reduction of the peak loads and hence the in the energy consumption for heating and cooling and the associated CO2 emissions.

All areas of the building, including offices, retail and restaurants will be served by the centralised heating and cooling system. Passive design measures have been prioritised to reduce energy demand, including:

– The design of the facades has been developed to provide shading to the glazing elements to reduce the amount of solar radiation entering the space and hence the cooling demand.

– All areas throughout the building will comprise high performing glazing, with low g-value (0.35) to reduce solar gains entering the space, whilst maintaining adequate daylight levels, having a visual light transmittance (VLT) of 60%.

– The concrete structure of the existing building will be retained, which is a material with high thermal mass. Exposed soffits and exposed building services are proposed enhancing the effect of thermal mass to mitigate any potential overheating and even out temperature variations within the space.

LIGHTING

Accessible and intuitive lighting controls will be installed within each space. Occupancy sensors have been specified in the back of house, circulation and reception spaces.

61% REDUCTION IN CO^2 EMISSIONS

100% ELECTRIC BUILDING

REGENERATIVE LIFTS

HEAT RECOVERY THERMAL STORAGE
HEATING & COOLING SYSTEM

EMBODIED **CARBON**

The embodied carbon in One Millennium Bridge has been significantly reduced through the comprehensive refurbishment of the existing building which retains 69% of the existing structural frame with demolition accounting for only 31%. By utilising the existing substructure, it avoids the use of new materials for the construction of new foundations and minimises the use of new materials therefore reducing the life cycle carbon impacts of construction.

69% OF EXISTING STRUCTURE IS RETAINED

29,000 SQ FT OF OUTDOOR ACCESSIBLE SPACE

467 CYCLE SPACES, 411 LOCKERS, 42 SHOWERS

OPENABLE WINDOWS OVERLOOKING THE RIVER THAMES

HEALTH & **WELLBEING**

OUTDOOR TERRACES

The building provides 29,000 sq ft of outdoor accessible spaces with 23,500 sq ft of extensive green roof on the level 6 for private office gardens and part publicly accessible to the social amenity space and the rooftop restaurant.

The terraces on level 5 are also landscaped and planting is included at the recessed balconies on the southern facades at Bridge level and levels 3 and 4. In addition there are two sunken courtyard gardens on level 5 which have access to the private garden on level 6.

TRANSPORT

One Millennium Bridge is located in close proximity to public transport networks and local amenities. Considering the high level of accessibility to public transport, no standard car spaces are provided. 413 long-stay cycle storage spaces and 54 short-stay cycle storage spaces are located in the basement to encourage the building occupants to use sustainable and healthier means of transport. 42 showers and 411 lockers with generous changing facilities are also located in the basement.

DAYLIGHT

The design has improved the average daylight provision by 15% compared to the daylight levels of One Millennium Bridge pre-refurbishment.

VENTILATION

The ventilation, air conditioning and daylight strategies maximise comfort for the occupants of the building. The ventilation strategy will minimise the concentration and recirculation of air pollutants. By supplying sufficient fresh air, the adequate ventilation levels specified will to remove pollutants and therefore reduce the risk to health associated with poor indoor air quality and reduce the risk of summertime overheating.

The windows on the southern elevation of the building overlooking the River Thames are all openable allowing fresh air to be brought into the floors from the natural clean corridor along the river.

SUSTAINABILITY

WATER CONSUMPTION

The scheme will reduce potable water consumption by 40% over the BREEAM baseline, through the specification of water efficient fittings. A water leak detection system will be installed at the mains water supply and flow control devices will be installed at each WC facility, to avoid water leakage and hence water consumption and the reduction of water consumption for irrigation.

Blue and green roofs are included at the 6th floor roof and terraces at level 5 to provide attenuation and passive irrigation of the soft landscaping.

Above the blue roofs, green roofs will have extensive build-ups to allow for rainwater attenuation in green infrastructure features for gradual release.

The proposed drainage strategy will achieve a 52% reduction in surface run-off (measured in litres per second per hectare) leaving the site at peak times.

RESPONSIBLY SOURCED MATERIALS

Materials have been selected considering their environmental impact alongside functionality, aesthetics and durability. The procurement of materials will prioritise materials which are responsibly and sustainably sourced and have a low embodied impact over their life to minimise the environmental impact of materials selected.

100% of timber and timber-based products used on the project will be legally sourced and certified (e.g. FSC certified).

Suppliers who can provide an environmental management system (EMS) certificate will be selected.

Areas exposed to high pedestrian traffic, vehicular and trolley movement will be specified to minimise the frequency of material replacement.

Exposed building elements have been designed and specified to limit long and short-term degradation due to environmental factors.

LAND

By redeveloping an existing building and retaining the sub-structure, One Millennium Bridge has not utilised greenfield land and there is no excavation waste.

BLUE & GREEN ROOFS ON 5TH & 6TH FLOOR TERRACES

RESPONSIBLY & SUSTAINABLY SOURCED MATERIALS

RETAINED SUB-STRUCTURE

MINIMISING THE USE OF NEW MATERIALS

The existing steelwork (for example existing steelwork at the roof) will be reused on-site, where the size of the existing steelwork suits the design proposals. Where it is not feasible for existing steelwork to be reused directly on-site, this will be diverted from landfill and will be either reused off-site or recycled.

One Millennium Bridge incorporates prefabricated and standardised facade bays which enables material efficiency, reducing the amount of materials used.

Glassfibre Reinforced Concrete (GRC) panels are used to re-clad the existing and retained façade which reduces weight (compared to the existing cladding material) and reduces the amount of material used as a supporting structure.

Exposed CLT used for the roof construction will act as soffit finish negating the need for an additional ceiling thereby reducing the quantities of materials used in the proposed scheme, whilst also providing flexibility in future tenants' fit-out options.

BIODIVERSITY

The proposed landscape design aims to improve biodiversity and the ecological value of the development, whilst supporting the City of London's planning policies aiming to enhance urban greening in the City. One Millennium Bridge provides an extensive green roof on the level 6, part of which will be publicly accessible. The terraces on level 5 are also landscaped and planting is included at the recessed balconies on the south facades. Several plant species are proposed by the landscape design, prioritising native species, with the aim to increase biodiversity on the site, avoid the urban heat island effect and reduce the surface water run-off.

The selection of plants includes native species to promote urban habitats for birds and insects, among other types of wildlife. Plant selection also includes nectar rich species to attract pollinators. Plants will be also selected to be resilient to drought and with low irrigation requirements.

To mitigate air pollution, species with hairy leaves and with mechanisms to capture particulate matter and absorb gaseous pollutants will also be incorporated.

FUTURE **PROOFING**

ADAPTABILITY AND FLEXIBILITY

The office areas are being finished to shell and core to reduce waste and allow for flexibility. The design includes a number of soft spots to allow for flexibility in internal space configuration by future tenants, providing adaptability.

LONGEVITY

Durability of materials has been one of the main criteria for selection, especially for the exposed parts of the building envelope (stone has been chosen as the primary façade material for its durability) and the hard-landscaped areas of the terraces (porcelain tiles and composite decking used on roof to ensure durability of landscaping materials).

Selection of durable materials will enable longevity as these materials will be in use for longer, reducing the need for frequent replacement and maintenance.

REUSABILITY AND RECOVERABILITY

Existing concrete which is removed from the building during demolition will be reused as recycled aggregates either on-site or off-site.

Where existing steelwork on-site is of appropriate size to suit the design proposals, this will be directly reused on site. Alternatively, steelwork that cannot be reused on-site, will be diverted from landfill by the contractor, identifying routes for off-site reuse or recycle.

NATIVE PLANT SPECIES USED TO PROMOTE URBAN HABITATS FOR WILDLIFE AND IMPROVE AIR QUALITY

SOFT SPOTS PROVIDED FOR FUTURE FLEXIBILITY

DESIGNED TO SHELL AND CORE TO REDUCE WASTE

DIVERSION OF **WASTE FROM LANDFILL**

EXCAVATION

One Millennium Bridge utilises the existing substructure and as such it is not associated with any excavation waste.

DEMOLITION

One Millennium Bridge utilises the majority of the existing structural frame which is being retained. Where partial demolition of the structural frame occurs, waste will be diverted from landfill with the aim to be reused or recycled.

CONSTRUCTION

The building's facades consist of prefabricated panels, which are manufactured off-site, designing out waste generated during construction. The Development will aim to reduce the amount of waste generated during the construction phase.

DIVERSION FROM LANDFILL TARGET

A site waste management plan will be utilised to inform the efficient management of construction site waste, with a dedicated space for the segregation and storage of operational recyclable waste generated. The aim is to divert waste from landfill and reuse or recycle.

Demolition waste target of greater than or equal to 90% by volume / 95% by tonnage.

Construction waste target of greater than or equal to 85% by volume / 90% by tonnage.

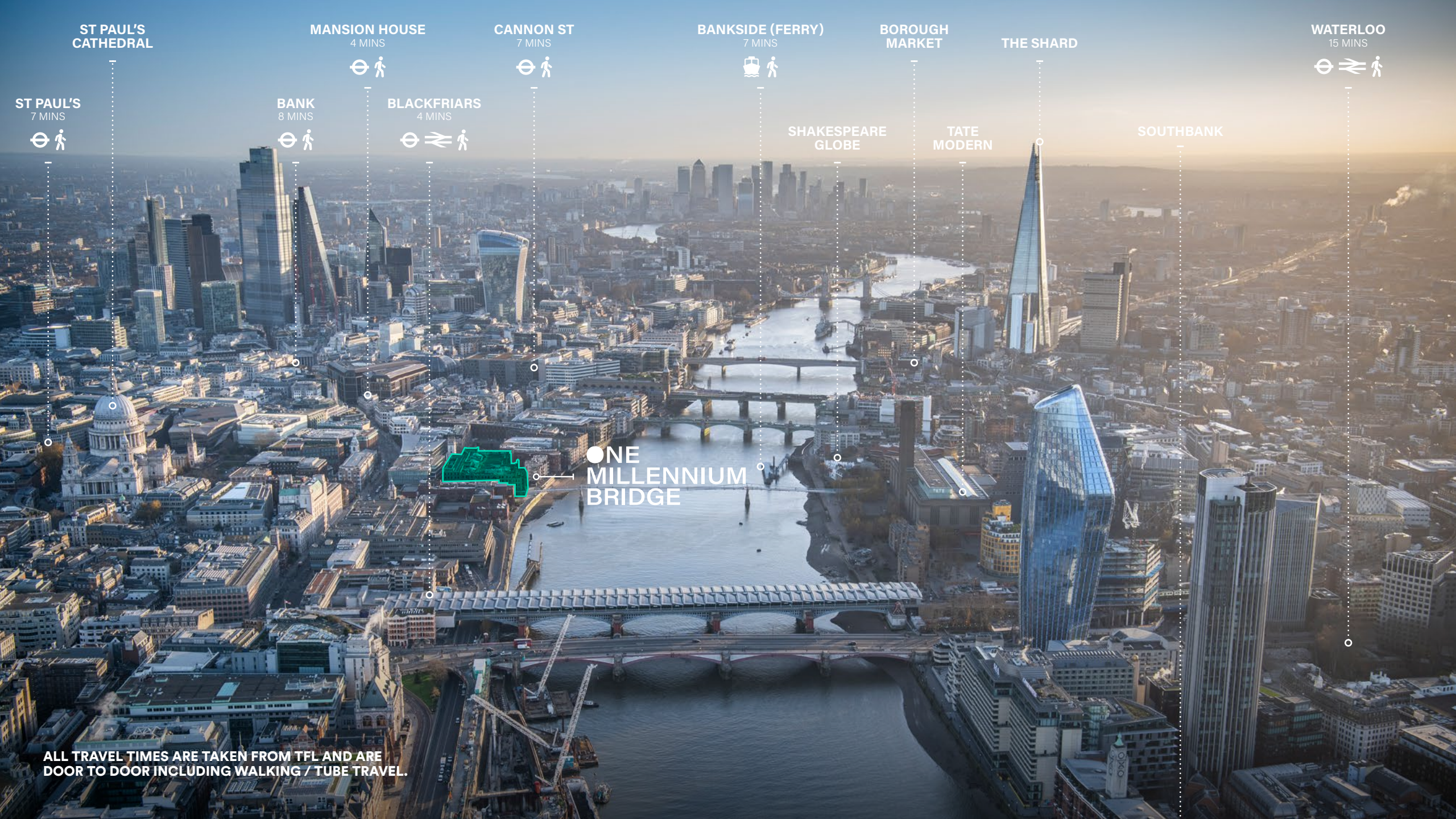
Non-hazardous waste to be diverted from landfill targeting the following minimum rates:

Demolition waste of 80% by volume / 90% by tonnage.
Non-demolition waste of 70% by volume / 80% by tonnage.

95% OF DEMOLITION WASTE DIVERTED FROM LANDFILL

90% OF CONSTRUCTION WASTE DIVERTED FROM LANDFILL


CITY OF LONDON
SCHOOL


ST PAUL'S CATHEDRAL
MANSION HOUSE
4 MINS
CANNON ST
7 MINS
BANKSIDE (FERRY)
7 MINS
BOROUGH MARKET
THE SHARD
WATERLOO
15 MINS
ST PAUL'S
7 MINS
BANK
8 MINS
BLACKFRIARS
4 MINS
SHAKESPEARE GLOBE
TATE MODERN
SOUTHBANK
ONE MILLENNIUM BRIDGE
ALL TRAVEL TIMES ARE TAKEN FROM TFL AND ARE DOOR TO DOOR INCLUDING WALKING / TUBE TRAVEL.

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