Report

Project	The Bermondsey Project
Report Title	Fire Strategy Summary
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Issue No . Issue 3
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Approved	PRM	PRM	GG			

Contents

1.0 INTRODUCTION

JGA have been appointed by the Applicant to develop the Fire Strategy for the Bermondsey Project and to liaise with the design team to ensure the masterplan design follows best practice.

The strategy has been developed broadly to a RIBA Stage 2 level of detail in accordance with the requirements of the Building Regulations and current best practice for residential apartment buildings. The sections below describe the key fire safety principles and features. It is the client's intention to provide additional features to enhance the overall fire safety package for the buildings across the site, over and above current Building Regulations requirements.

This Fire Safety Statement report describes the fire strategy principles for the Bermondsey Project Masterplan. It is to form part of the documentation submitted for planning and in particular to demonstrate compliance with Policy D12 of the Intend to Publish Version of the Draft London Plan.

JGA are a highly experienced team of specialist fire engineers that have been operating in the UK and Ireland for more than 26 years. The lead engineer on this project is a Chartered Fire Engineer with over 20 years of fire engineering experience.

2.0 APPROVALS PROCESS

The project will engage with the regulatory authorities including the London Fire Brigade at an early stage to discuss and agree the fundamental principles for fire safety. The intention is to follow a 'gateway' style process as recommended by the Hackitt review.

The project has already been introduced to the London Fire Brigade at a meeting on 11 July 2019. A pre planning Qualitative Design Review (QDR) was undertaken involving the client, design team and statutory authorities in a workshop on 17 September 2019.

3.0 SPRINKLERS

Building Regulations guidance recommends that sprinklers should be provided in buildings that have floors more than 30 m above ground.

The current intention is to provide sprinklers to all buildings across the masterplan regardless of height. This includes all apartment buildings, the school, offices, retail, and basement car parking.

The provision of sprinklers to all buildings across the site will deliver a higher standard of fire safety than if designed in accordance with Building Regulations guidance.

4.0 APARTMENTS

Each apartment will be provided with its own smoke alarm system designed to current standards.

In open plan apartments, smoke alarms will be provided in each habitable room with a heat detector in the kitchen.

Each apartment will be separated from adjacent apartments and common areas by fire rated walls and floors.

5.0 EVACUATION PRINCIPLES

Apartment buildings have traditionally been designed on a defend in place or stay put strategy. This strategy will be the base case for the apartment buildings. However, the intention is that there will be a facility built into the apartment fire alarm systems that will enable the fire brigade to initiate a full or partial evacuation of the building at their discretion.

As such the project will provide full flexibility on the evacuation strategy, ranging from 'full evacuation' to 'partial evacuation' to 'stay put', depending on the specific circumstances of a particular fire emergency situation.

6.0 CORRIDORS, STAIRS AND LIFTS

The following fire safety features will be provided in the communal areas:

- The communal residential corridors will be separated from the apartments by fire rated walls.
- The corridors will be provided with smoke vents or smoke extract system to vent smoke from the corridor and to protect the escape stair.
- Longer travel distances will be permitted in the residential corridors where the more sophisticated 'push pull' smoke extract systems are installed, see figure 1 below. These systems are more effective at removing smoke as they are designed to flush smoke from the corridor.
- The escape stair will be enclosed in fire rated walls and accessed through fire rated doors.
- Two fire fighting lifts will be provided in all apartment buildings with floors more than 18 m above ground level. The reason for the second lift is to provide a facility to assist the evacuation of mobility impaired occupants as well as providing additional resiliency should a lift be under maintenance.
- Fire mains (wet or dry as the height of the building dictates) will be provided in the staircases to assist fire fighting operations.

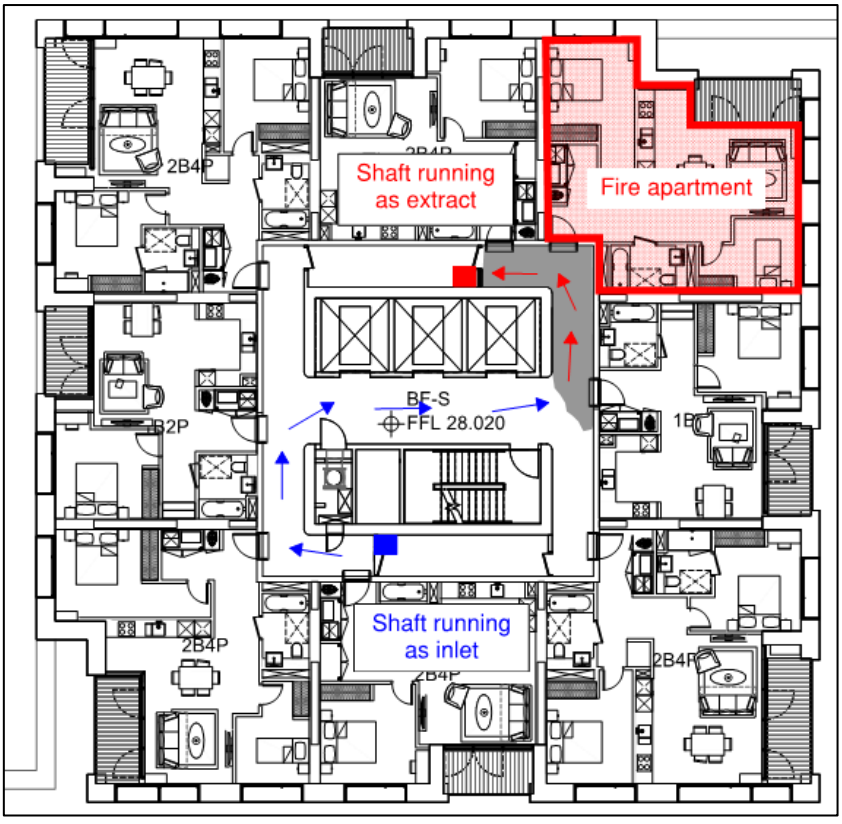

Figure 1 - Push Pull Smoke Control System in Building RST

Escape and fire fighting facilities in the non residential uses will be designed in accordance with current codes and standards.

7.0 EVACUATION OF MOBILITY IMPAIRED OCCUPANTS

The provisions provided in an apartment building are designed to minimise the risk of fire spread beyond the flat on fire and allows the residents of non fire flats to stay in their own homes (stay put strategy). This strategy applies to all occupants both able bodied and mobility impaired.

For that reason, Building Regulations guidance does not make any specific recommendation for the need for any additional features to assist mobility impaired occupants who use the building.

The intend to publish the London Plan, however, states that buildings should be designed to facilitate a dignified escape for occupants of restricted mobility. It proposes that at least one lift per core should be usable for mobility impaired escape.

The provision of one fire fighting lift within a building would meet the requirements of the London Plan. The project, however, intends to provide an enhanced solution. All of the apartment buildings have multiple lifts. It is proposed that two of the passenger lifts will be designed as fire fighting lifts.

Two firefighting lifts should allow for one to be dedicated to the Fire Brigade with the other potentially being used for the evacuation of occupants, particularly those with mobility impairments, should a full evacuation be considered necessary. This satisfies the intent of the London Plan in providing measures to facilitate a dignified escape for occupants of restricted mobility. It also overcomes any potential conflicts between the needs of escaping occupants and those of fire fighters trying to access the fire floor.

8.0 ASSEMBLY SPACES

A key parameter for any escape design is that once occupants exit the building, they can rapidly disperse away from the area of risk. There are extensive public landscaped areas throughout the site (see Figure 2) and adjacent to each building. This provides multiple routes where occupants can disperse to a place of final safety and to wait for instruction from the Fire Brigade as to when they will be permitted to re-enter the building.

9.0 FIRE RATING OF BUILDING STRUCTURE

The structure of all buildings will be designed to achieve fire resistance to the standard specified by Building Regulations guidance. Buildings with floors more than 30 m above ground will achieve two hours fire resistance.

10.0 CONSTRUCTION METHODS AND MATERIALS

The external walls will be designed to comply with the Regulation 7 of the Building Regulations and the latest guidance in the 2019 version of the Approved Document B.

In particular, all parts of the external wall of the residential buildings that have floors > 18m in height will be constructed of either A1 or A2-s1, d0 materials. This includes specified attachments such as balconies.

There are specific exemptions noted in Regulation 7(3) and these will be followed as appropriate.

The facades palate includes brick, glassfibre reinforced concrete (GRC), reconstituted stone, metal panels, and glass. All façade insulation to be specified as non combustible mineral wool.

Cavity barriers will be provided within any external wall cavities in accordance with the guidance in the Approved Document B. Openings and similar penetrations will also be provided with appropriate cavity closers, cavity barriers etc in order to achieve the required fire separation as set out in the Approved Document B.

There are various methods that can achieve the fire resistance requirements e.g. intumescent paint, boarding etc. It is too early in the design process to know exactly which method will be used for which plot. The choice

of system will be evaluated for each plot in turn as the design develops but will use recognised methods of applied fire protection from certified providers.

At the next stage of design development, Grosvenor will determine construction methodology for buildings within each phase, taking into account overall commercial and programme considerations as well as site constraints, sustainability objectives and fire safety requirements. The Construction Management Plan and Sustainability/Environmental Statements, within the submitted Planning Addendum, stated that Grosvenor will give serious consideration to adopting modern methods of construction.

This will range from the prefabrication of individual building components and elements (including façade panels, bathroom pods and service risers), through to the offsite manufacture of structural frame solutions. There are significant sustainability benefits in standardising building products and systems, including reduced waste and less carbon emissions from reduced site deliveries, and Grosvenor will seek to maximise opportunities to deliver such benefits where appropriate. From the fire safety standpoint, Grosvenor will ensure that construction methods, products and materials are specified, tested and installed strictly in accordance with industry standards, and that site workmanship is independently inspected and approved by qualified specialists.

11.0 SCHOOL

The school was developed to a Stage 3 level of design in 2018 and the design draws from the guidance in BB100 – *Design for fire safety in schools* although some aspects of the fire strategy have been developed using fire engineering principles.

The school will be sprinklered to minimise the consequences of a fire.

The schools escape routes have been designed to accommodate the required design occupancy of 680 staff and children. There are four protected stairs. Two of these stairs have been designed as fire fighting stairs.

The fire strategy for the school is described in more detail in a separate report (JGA Ref AL4832/R2/Issue 8).

12.0 SITE FIRE VEHICLE ACCESS

The design will ensure that there are sufficient external access routes that enable fire vehicles to drive near to each building to enable effective fire fighting operations. All roads and similar routes will satisfy the specification for width, clearances, and carrying capacity required by Building Regulations guidance.

Fire vehicles will be able to park within 18 m of the fire main inlet for each building. The fire mains will be clearly visible from the fire vehicle set down points.

Sufficient fire vehicle access will be provided to the perimeter of any ground level uses e.g. shops/restaurants etc.

The proposed fire vehicle access routes are shown in Figure 2 below. Any dead end roads will be restricted to avoid reversing distances of more than 20 m or alternatively will be provided with turning facilities.

Fire hydrants will be provided within 90m of the inlet to the fire mains in each Plot or to the entrances to the retail/other uses. Fire hydrants will not be more than 90m apart.

A preliminary analysis of the location of the existing hydrants has been carried out and has been used to establish the locations of any new fire hydrants. The output will be discussed with the London Fire Brigade to ensure that it meets their operational needs.

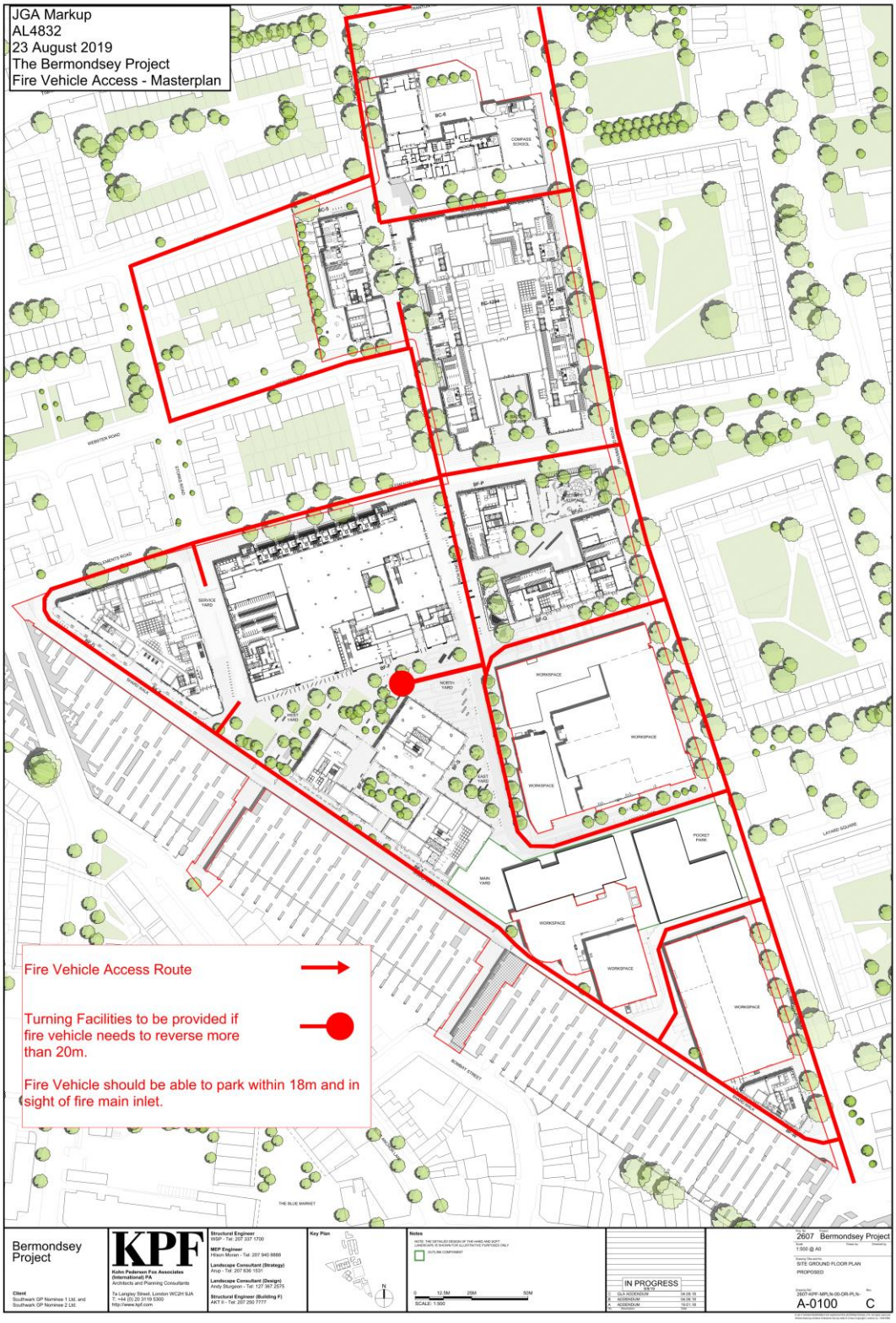

Figure 2 - Site Wide Fire Vehicle Access Routes

13.0 FIRE FIGHTING FACILITIES WITHIN BUILDINGS

Where buildings have a top floor height of more than 18m (typically 6 floors), a firefighting core will be provided.

The firefighting cores will include the following features:

- Firefighting lifts (within 7.5 m of the stair).
- Firefighting lobby, formed by the smoke vented common corridor linking the apartments.
- Dry riser outlet (wet risers will be provided if the top floor is more than 50m above access level).
- A stair at least 1,100mm wide.

All buildings on the Bermondsey project will be sprinklered and hose cover to all areas of up to 60 m is permissible.

All residential buildings will contain at least two firefighting lifts. This will provide enhanced facilities for fire fighters as well as providing a facility to assist the evacuation of mobility impaired residents.

A secondary source of power, such as a generator, will be required for all life safety systems in the event of loss of power.

14.0 CONSTRUCTION MANAGEMENT AND FUTURE MODIFICATIONS

The client Grosvenor Britain and Ireland intends to appoint a compliance monitoring team, with specialist fire engineering expertise, to provide technical assurance on the design and installation of fire-safety related systems. This will include sign-off of contractors' fire safety record information, as part of the handover process for each building to Grosvenor's operational management team.

The contractor will be required to provide the end user a fully detailed package of information as part of their Regulation 38 obligations. This will include details on the fire safety arrangements, O&M manuals etc that will explain how the building works and the obligations of management and users.

Any future modifications that require building work would need to be designed and installed to meet the building's fire strategy and Building Regulations at the time that work is being carried out.

15.0 INFORMATION, LIMITATIONS AND ASSUMPTIONS

The information limitations and assumptions used in the preparation of this report are noted below: -

Information

The following information was used for the preparation of this report: -

This report is based on the KPF Masterplan Design Freeze 3b dated August 2019.

The Bermondsey Project – QDR Discussion Report dated 16 September 2019.

Compass School Fire Strategy JGA Ref AL4832/R2/Issue 8

The Bermondsey Project – Fire Safety Statement Report dated 17th January 2020

Building Regulations

This report considers building regulations, which deal with life safety. Property protection and insurance issues are not addressed in this report. Guidance on property protection and insurance requirements can be found in the document *Approved Document B: Fire Safety (Volume 2) – Buildings other than dwellinghouses Incorporating Insurer's Requirements for Property Protection,* RIBA Publishing 2008.

Other Limitations

Complying with the recommendations of this report will not guarantee that a fire will not occur.

Unless otherwise described in this report, the fire strategy assumes that the building design, the mechanical and electrical systems, construction methods and materials specifications will comply with current Building Regulations guidance, and relevant British Standards and Codes of Practice. The design of mechanical and electrical systems such as fire alarm and sprinklers is a specialist area. Fire Strategy recommendations are given in this report, however, the design and specifications need to be developed at the appropriate stage in consultation with the specialist designers of these systems.

This report has been prepared for the sole benefit, use and information of Grosvenor Britain and Ireland and the liability of Jeremy Gardner Associates Limited, its directors and employees in respect of the information contained in the report will not extend to any third party.

OFFICES AND CONTACT INFORMATION

Should you have any queries with this report please contact our London Office.

London Office:
11 Risborough Street
London
SE1 OHF
Tel: +44 (0)20 7202 8484
London-jga@jensenhughes.com

OTHER JGA OFFICES AT:

Manchester Office:
2nd Floor
Swan Buildings
20 Swan Street
Manchester
M4 5JW
Tel: +44 (0)1612366527
Manchester-jga@jensenhughes.com

Edinburgh Office:
22 Hanover Street
Edinburgh
EH2 2EP
Tel: +44 (0)131 226 1661
Edinburgh-jga@jensenhughes.com

Glasgow Office:
30 Gordon Street
Glasgow
G1 3PU
Tel: +44 (0)141 847 0446
Glasgow-jga@jensenhughes.com

Dublin Office:
9 Upper Baggot Street
Dublin 4
D04 A6W7
Tel: +353 (0)1 661 4925
Dublin-jga@jensenhughes.com

Belfast Office:
Victoria Place
Wellwood Street
Belfast
BT12 5GE
Tel: +44 (0)2890 230 300
Belfast-jga@jensenhughes.com

Galway Office:
Office 3, Monterey Court
Salthill, Galway
Ireland
Tel: +353 (0)91 528 342
Galway-jga@jensenhughes.com


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