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Design Note No. DN01

Project 64 The Green, Twickenham **Date** 23rd August 2024

Subject Planning Stage Fire Statement

1.0 DOCUMENT CONTROL

Issue	Date	Description	Author	Reviewed
-	08/07/24	Initial issue	BH	BW
A	23/08/24	Incorporating design updates	BH	BW

Note: All updates since the previous Issue are highlighted by a vertical line in the right hand margin

2.0 INTRODUCTION

BWC Fire Limited (BWC) has been appointed to produce a fire statement for the proposed conversion and redevelopment of the buildings on the existing site at 64 The Green in Twickenham to form five new residential dwellings; three two storey houses and two single level apartments. This fire statement has been developed for the purposes of the planning application and to address compliance with the London Plan Policies D5/D12(A)/D12(B), however this document also offers a summary of the fire safety information applicable to Building Regulations.

The fire statement principles have been developed based on the guidance in Approved Document B, Volumes 1 and 2, including the May 2020, June 2022 and March 2024 amendments.

3.0 BUILDING DESCRIPTION

The development concerned consists of an existing site at 64 The Green in Twickenham. At completion of the proposed works it will introduce five new residential dwellings spread across Ground and First floors. Each of the proposed dwellings will be accessed independently from outside at ground floor level. The site is accessed from May Road to the East and The Green to the South.

Plots 1-3 of the proposed development will be accessed from The Green, whilst plots 4 and 5 will be accessed from May Road. Fire service access to the accommodation across the site will be achieved directly from the public roads serving the site.

The buildings concerned each present a top floor less than 11m above ground.

The accommodation addressed within this report is classified in the following Purpose Groups under ADB:

Accommodation	Purpose Group
Residential Apartment	1(a)
Residential Houses	1(c)

Note – Plant and store rooms are considered ancillary to the main building uses.

4.0 FIRE STRATEGY SUMMARY

The proposals outlined in this document demonstrate a level of fire safety equal to or greater than the general standard implied by compliance with the recommendations in Approved Document B, Volume 1 including the May 2020, June 2022 and March 2024 amendments to Approved Document B. This level of safety therefore satisfies the functional requirements of the Building Regulations relating to fire safety.

The fire strategy can be summarised as follows:

Design Item	Recommendations
1. Evacuation Philosophy	• A defend in place strategy is proposed for all accommodation areas on the development whereby in the event of a fire in an unit the fire alarm system locally in that unit will activate only. All other areas will not automatically evacuate. • No alarm interlinks between the accommodation areas within the buildings or site are proposed.
2. Escape within Apartments	• The proposed apartments will each be accessed independently from outside at ground floor level. • The apartment at first floor will be provided with escape windows from all habitable rooms to outside. • The apartment at ground floor will incorporate an internal protected entrance hallway which will afford 30 minutes fire resistance and FD20 internal doors (no self closers or cold smoke seals are needed to the internal entrance hallway doors). Travel distances within the hallway will be limited to a maximum of 9m in a single direction. • The apartments will be separated from each other and all other accommodation by 60 minutes fire resisting construction. • The apartments will each incorporate a fire alarm and detection system designed and installed in accordance with BS 5839-6 to Grade D1 Category LD2 standard.
3. Escape within Houses	• Each of the houses within the proposed development are accessed independently from outside at ground floor level. • It is proposed that Plot 2 will incorporate a protected entrance hall at ground floor, which will afford 30 minutes fire resistance and FD20 internal doors (no self closers or cold smoke seals are needed to the internal entrance hallway doors) and discharge to outside at ground floor level. The staircase within this plot will be internal to the first floor bedroom. • Plots 4 and 5 will each include an internal protected entrance hallway and staircase which will afford 30 minutes fire resistance and FD20 internal doors (no self closers or cold smoke seals are needed to the internal entrance hallway doors) and discharge to outside at ground floor level. • The houses will each incorporate a fire alarm and detection system designed and installed in accordance with BS 5839-6 to Grade D1 Category LD2 standard.
4. Disabled Evacuation	• All areas of the development are understood to be provided with primary access directly from outside at ground floor level, and no areas of the accommodation above ground level are proposed to be provided with lift access. On this basis it is not considered necessary to provide an evacuation lift or other disabled evacuation measures in order to demonstrate compliance with the Building Regulations and D5 of the London Plan.
5. Fire alarm and detection system	• The fire alarm and smoke detection systems within each dwelling will be designed in accordance with BS 5839 Part 6 and be to a LD2, Grade D1 standard. These fire alarm systems are standalone systems local to their respective dwelling. They will not be linked to any of the other dwellings.
6. Assembly Points	• The building evacuation premise results in minimal area required as an assembly point however the site includes direct access to extensive public footpaths and the Twickenham Green public open space beyond. This area is large enough to accommodate all occupants of the building if this was required in a worst case event. The number of diverse routes away from the buildings via the public footpaths mean that the evacuation of occupants is unlikely to interfere with fire service access routes.
7. Fire Suppression	• The buildings concerned are each less than 11m high and therefore automatic fire suppression is not required to satisfy the Building Regulations. On this basis none is proposed.

Design Item	Recommendations
8. Emergency Lighting	• The proposed development does not include any common areas or commercial/publicly accessible accommodation, as such no emergency lighting is proposed.
9. Escape signage	• The proposed development does not include any common areas or commercial/publicly accessible accommodation, as such no directional escape signage is proposed.
10. Elements of Structure	• All elements of structure within the apartment building will afford 60 minutes fire resistance as applicable for buildings that are less than 18m high. • Elements of structure supporting the internal floors within the houses may achieve 30 minutes fire resistance, however any elements of structure supporting party walls separating buildings should achieve 60 minutes fire resistance. • Any elements which only support themselves and or a roof can be non-fire rated.
11. Compartmentation	• The apartments will be separated from all other areas and each other by 60 minutes fire resisting construction. • The floor separating the residential apartments from each other should be a compartment floor with a fire resistance of 60 minutes. • Floors within houses are not required to be compartment floors, but should achieve a level of fire resistance equivalent to the elements of structure from the underside in each case. • Party walls separating houses from each other will achieve 60 minutes fire resistance. • The internal protected hallways/staircases within dwellings should achieve 30 minutes fire resistance with FD20 fire doors. • All service risers in the apartment building should be constructed as 60 minute fire resistant protected vertical shafts with FD30S lockable doors. • Wherever there is a conflict between the above fire ratings the higher rating will always apply.
12. Cavity Barriers, Fire Stopping and Linings	• Fire stopping and cavity barriers should be provided as recommended in Approved Document B throughout the buildings. • All linings within small rooms less than 4m2 in area should achieve a minimum surface spread of flame rating of D-s3,d2. • All linings within other accommodation spaces larger than 4m2 should achieve a minimum surface spread of flame rating of C-s3,d2, however this may be downgraded to D-s3,d2 for a maximum of 20m2 or half of the room's floor area (whichever is smaller). • All linings within the circulation spaces (corridors, staircases etc.) should achieve a minimum B-s3,d2 rating.
13. External Fire Spread	• The buildings considered each present a top floor less than 11m above ground. On this basis the guidance within Approved Document B would suggest that any areas within 1000mm of a relevant boundary should achieve a minimum Class B-s3,d2 rating, whilst areas more than 1000mm from the boundary do not need to achieve a specific rating. Whilst this is reflective of the minimum standards of the Building Regulations, it is recommended that materials achieving a minimum Class A2-s1,d0 rating are specified wherever possible in order to minimise the risk of the external walls supporting fire spread. • It is recommended that balconies and other specified attachments to the external walls should also be constructed of materials which offer a minimum European class A1 or A2-s1,d0 rating. It should be noted that where a roof is accessible other than for maintenance, for example a terrace area, it may be considered equivalent to a specified attachment and the above requirements applied to insulation and other materials therein. • All wall construction within 1.8m of any single direction external escape routes should be fire rated to at least 30 minutes fire resistance. • Any areas of the façade located within 1000mm of the relevant boundary should be fire rated to match the elements of structure (i.e. 60 minutes integrity and insulation) from both sides and openings limited in line with Diagram 11.5 of Approved Document B Volume 1. • The North elevation of **Plot 5** is understood to present an enclosing rectangle of 12m x 6m and a boundary distance of approximately 1000mm; on this basis it should be fully protected as discussed above.

Design Item	Recommendations
13. External Fire Spread (Cont.)	• The West elevations of **Plots 4 and 5** are each understood to present an enclosing rectangle of 6m x 6m and a boundary distance of at least 5.0m; on this basis these elevations are acceptable 100% unprotected. • The South and East elevations of each dwelling are understood to be acceptable fully unprotected, based on the available boundary distances. • The West elevation of **Plot 2** is understood to present an enclosing rectangle of 12m x 6m, and sits approximately 2.3m from the relevant boundary at it's closest point. On this basis the openings to this façade should be limited to **6.84m^2**, and the remainder of the façade fire rated to 60 minutes integrity and 15 minutes insulation for exposure from the inside. It may be possible to increase the permitted amount of unprotected openings to this façade in future by undertaking a more in-depth assessment of the boundary conditions, due to the complex relationship between the façade and adjacent boundary. • The outward facing elevations of the apartments are each understood to be acceptable fully unprotected based on their size and available boundary distances, whilst the inward facing elevations are each fully protected.
14.Fire Service Access	• The residential accommodation within the buildings includes a top floor less than 18m above ground, and as such will not include a fire fighting shaft. • The most remote extents of the accommodation areas are each understood to be accessible within 45m of a fire appliance parking location on May Road or The Green, measured along a route suitable for laying hose. On this basis no dry risers are required or proposed to achieve adequate fire service access to any parts of the buildings. • As the proposed development does not include the creation of any new fire compartments more than 280m^2 in area, no new private hydrants are required in order to satisfy Building Regulations requirements. Notwithstanding this, it is understood that an existing public hydrant is present directly opposite the site on May Road, significantly less than 90m from all parts of the site.
15.Smoke Clearance	• No smoke clearance facilities are needed from any of the accommodation areas on the site.

5.0 FIRE STRATEGY SUMMARY REFERENCING AGAINST THE LONDON PLAN FIRE POLICY D12

The proposals outlined in this document demonstrate that the proposed new building complies with The London Plan Fire Safety Policy D12(A), (B) and section 110.d of the National Planning Policy Framework [2019] with regards to fire safety. The below points from the planning policy are consider against the fire safety design information outlined in Section 4 with cross referencing to the planning policy to demonstrate how each item has been achieved.

London Plan Fire Safety Policy D12 (A)

- *Applicants should demonstrate on a site plan that space has been identified for the appropriate positioning of fire appliances. These spaces should be kept clear of obstructions and conflicting uses which could result in the space not being available for its intended use in the future.* – This item is discussed in Item 14 of Section 4 and Appendix A.

- *Applicants should also show on a site plan appropriate evacuation assembly points. These spaces should be positioned to ensure the safety of people using them in an evacuation situation*. – This item is discussed in Item 6 of Section 4 and Appendix A.

- *Are designed to incorporate appropriate features which reduce the risk to life and the risk of serious injury in the event of a fire; including appropriate fire alarm systems and passive and active fire safety measures:* - This item is discussed in Items 2 and 3 of Section 4. The measures are primarily based the provision of automatic fire alarm systems within the accommodation areas. Compartmentation has also been provided to keep the escape routes protected.

- *Are constructed in an appropriate way to minimise the risk of fire spread:* - This item is discussed in Items 2, 3, 10, 11, 12 and 13 of Section 4.

- *Provide suitable and convenient means of escape, and associated evacuation strategy for all building users* – This item is discussed in Items 1, 2, 3 and 4 of Section 4.

- *Develop a robust strategy for evacuation which can be periodically updated and published, and which all building users can have confidence in.* – The evacuation strategy is outlined in Item 1 of Section 4. This strategy is independent for each area of accommodation. Given this configuration the arrangements are robust and not affected by developments beyond this site and therefore the evacuation strategy is unlikely to require changing in the future however should changes be necessary the occupants at the time would be free to do so.

- *Provide suitable access and equipment for firefighting which is appropriate for the size and use of the development.* – This item is summarised in Item 14 of Section 4 and Appendix A.

London Plan Fire Safety Policy D12 (B)

Planning Criteria	Fire Strategy Comments
1) The building's construction: methods, products and materials used, including manufacturers' details	Construction methods, products and materials including manufacturers' details will be governed by the Employer's Requirements and subject to acceptance by the end user client, Principal Designer, Building Warranty Provider and Building Control Body. The detail of the construction fire performance is outlined in Section 4 Items 10, 11, 12 and 13.
2) The means of escape for all building users: suitably designed stair cores, escape for building users who are disabled or require level access, and associated evacuation strategy approach	The building escape routes have generally been developed to comply with the guidance in Approved Document B, Volume 2. By complying with this guidance it is intended that Building Regulations and planning requirements for escape are met. Core parts of the escape provisions rely on robust compartmentation between floors and accommodation areas. The compartmentation is supported by automatic fire alarm systems within the accommodation areas. No access is provided to areas of the buildings which are above or below ground for users who are disabled or require level access, as such no further consideration to the evacuation of such users is required.
3) features which reduce the risk to life: fire alarm systems, passive and active fire safety measures and associated management and maintenance plans	BS5839 Part 6 fire alarm and detection systems to all dwellings. Compartmentation in accordance with ADB, to be developed by the contractor and approved by the Building Control Body. Management plans will be developed for the building owners acceptance and adoption under the RRO and Fire Safety Act.
4) Access for fire service personnel and equipment: how this will be achieved in an evacuation situation,	The fire service access externally is based on parking on the public roads serving the site. The fire service vehicle access arrangements do not conflict with escape routes away from the building or the assembly points. Beyond the above the fire service are likely to have arrived after the area concerned has evacuated due to the defend in place evacuation strategy that is present. The exit routes are wider than the widths needed for evacuating occupants so there should be excess width available should fire service access be needed during an evacuation.
- Water supplies, provision and positioning of equipment,	Section 4, Item 15 discusses fire fighting operations. All parts of the accommodation are understood to be accessible within 45m of a fire appliance parking location. Existing hydrants are present within 100m of all of the proposed accommodation areas.
- Firefighting lifts, stairs and lobbies,	The buildings do not include any floors more than 18m above ground and as such do not include any firefighting lifts, stairs or lobbies.
- Any fire suppression and smoke ventilation systems proposed, and the ongoing maintenance and monitoring of these	No automatic fire suppression or smoke ventilation systems are required to the buildings in order to satisfy Building Regulations requirements, as such none are proposed.
5) How provision will be made within the curtilage of the site to enable fire appliances to gain access to the building	The fire service access externally is based on parking on the public roads serving to the site. The fire service vehicle access does not conflict with escape routes away from building.

6) Ensuring that any potential future modifications to the building will take into account and not compromise the base build fire safety/protection measures.	The landlord should insist that the contractor passes onto them a full Regulation 38 information pack ideally prior to completion of the building. This information will then be held on record by the landlord and informs firstly the fire risk assessment that is undertaken prior to occupation but also the regime of ongoing maintenance required to manage the building. Should future works be instructed to the building then the designers and contractors involved will be issued with the original Regulation 38 information pack and also the current status of the maintenance arrangements to ensure that a full picture of the building fire safety facilities is available and visible.

6.0 AUTHOR DETAILS

Ben Haskell BSc (Hons), AIFireE

Memberships & Qualifications:

- BSc (Hons.) in Fire Safety Engineering – University of Wales, Newport
- Associate of the Institute of Fire Engineers (Member No. 00052697)

Career Profile:

- 2014 – Present: Director, BWC Fire Limited
- 2013 - 2014: Senior Fire Engineer, BWC Fire Limited
- 2012 - 2013: Fire Engineer, FDS Consult
- 2011 - 2012: Graduate Fire Engineer, FDS Consult
- 2010 - 2010 (5 months): Graduate Fire Engineer, FDS Consult

7.0 REPORT LIMITATIONS

In preparing this report it has been assumed that detailed aspects of the design and construction will, unless stated otherwise in this report, be in accordance with the recommendations of the relevant Approved Documents to the Building Regulations, applicable British Standards and other relevant codes of practice.

This report relates only to statutory requirements associated with Building Regulations and the Regulatory Reform (Fire Safety) Order 2005. Additional fire safety measures necessary during construction/remedial works or for insurance, loss prevention or environmental protection purposes are not considered.

The terminology “will” or “will be” as used in this report represents the recommendation/understanding of BWC regarding the proposed design, construction or management of the premises. The validity of this report is reliant upon these items being implemented as described.

This report relates to a project that is subject to third party ratification and it must be ensured that the contents of this report are agreed with all the relevant approval bodies prior to implementation.

APPENDIX A – SITE FIRE SERVICE ACCESS PLAN

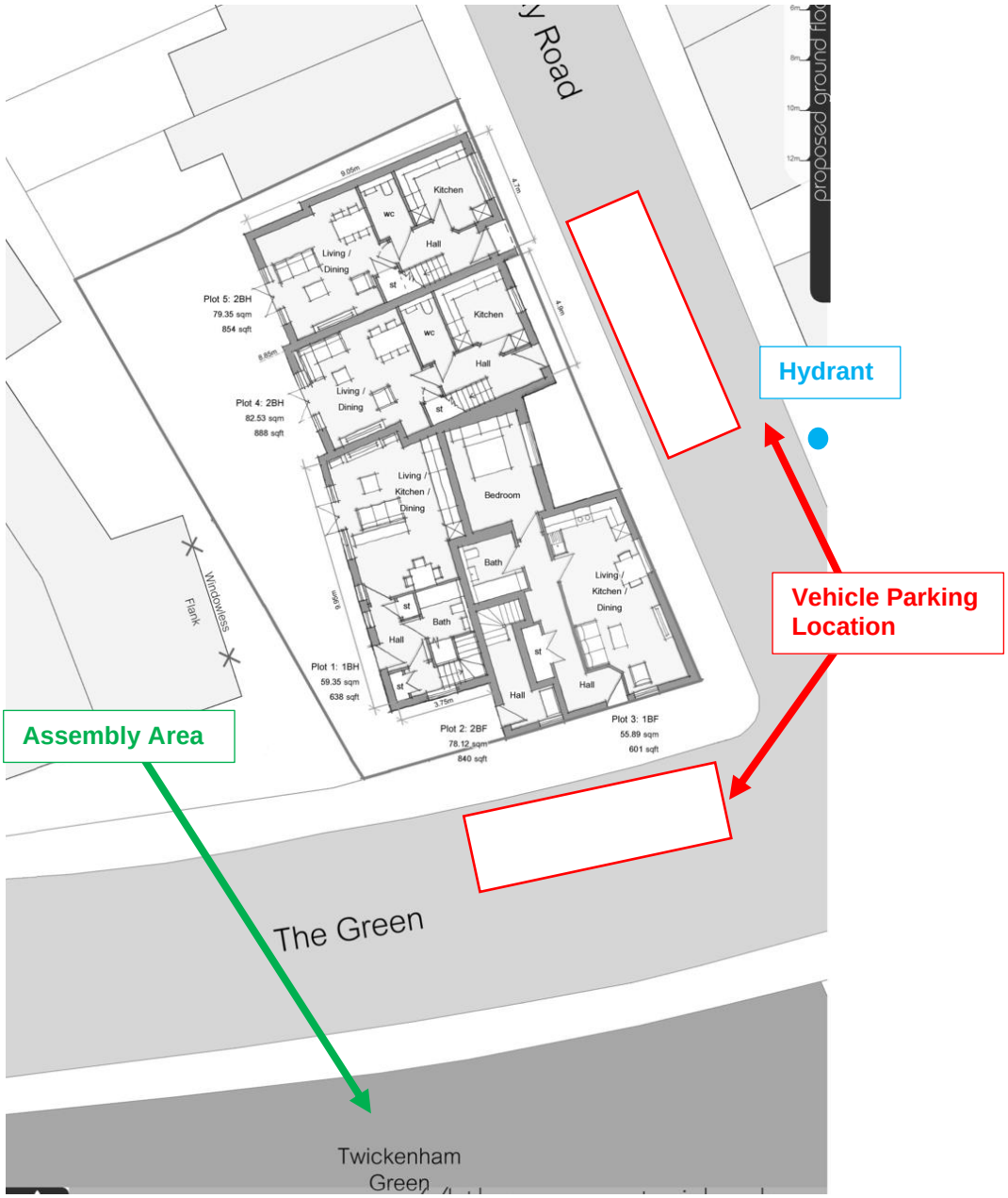

Figure A1 – Site fire service access plan