Warren Smith & Partners Pty Ltd

BARANGAROO SOUTH 1A RESIDENTIAL BUILDINGS R8 & R9

FIRE SERVICES REPORT

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Prepared by:

WARREN SMITH & PARTNERS PTY LIMITED
Consulting Hydraulic and Fire Protection Engineers
ACN 002 197 088
ABN 36 300 430 126
1st Floor
123 Clarence Street
SYDNEY NSW 2000

Telephone: *(02) 9299 1312*
Facsimile: *(02) 9290 1295*

Prepared for:

LEND LEASE
30 The Bond
30 Hickson Road
MILLERS POINT NSW 2000

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1. Fire Services

The Fire Services that will be provided for Barangaroo Residential Building R8 & R9 will include:-

- Fire Hydrant Service;
- Fire Sprinkler Service for the Residential Building R8 & R9 which both have an effective height greater than 25m;
- Fire Hose Reel Service;
- Fire Detection & Alarm Service consisting of smoke detectors to the Apartment Lobbies Fire Stair Doors to AS 1670.1;
- Portable Fire Extinguishers.

1.1 Standards

The Fire Services will be designed to a minimum of the following Standards:-

- National Construction Code (NCC)
- City of Sydney Council
- AS 2441.1 – Fire Hose Reels
- AS 2419.1 – Fire Hydrant Installations
- AS 2118.1 – Fire Sprinkler Installations
- AS 2118.6 – Combined Fire Sprinkler / Hydrant Systems
- AS 1670.1 – Fire Detection, Warning, Control and Intercom Systems
- AS 1670.4 – Sound System & Intercom System for Emergency Purposes (EWIS)
- AS 2444 – Portable Fire Extinguishers and Fire Blankets
- AS 3500 – Plumbing and Drainage Code

1.2 Wet Fire Systems Infrastructure

The Basement of Barangaroo South Stage 1A will provide adequate water supply for both the pressure and demand requirements for the Fire Hydrant & Fire Sprinkler Services.

Connection will be required to the Basement P1 pressure zone ring main which will supply a maximum pressure of 1,200kPa. The mains will be connected through the Fire Stairs at Basement Level and reticulated through the Buildings.

The water supply is to provide the simultaneous demand of both sprinkler and hydrant systems.

1.3 Fire Systems

Fire Sprinkler System

The Residential Buildings R8 & R9 will require sprinkler protection throughout as the Building height exceeds 25m in effective height under Table E1.5 of the NCC.

The Hazard Classifications would be as follows:-

Retail - Ordinary Hazard 3

Residential Apartments – Residential Sprinklers in accordance with AS 2118.1

Residential Apartment Corridors & Back-of-house areas – Light Hazard to AS 2118.1

Plantrooms – Light Hazard to AS 2118.1 with spacings reduced to $9m^2$

The Fire & Rescue NSW Combined Sprinkler / Hydrant Booster Valve Assembly shall be provided adjacent to the main Foyer to the Residential Building as part of the Combined Sprinkler / Hydrant Booster or as otherwise agreed with Fire & Rescue NSW.

Sprinkler control valve assemblies will be located in a Central Fire Stair with provision made for clear access.

On-floor Sprinkler pipework above ground will be medium weight mild steel pipework with rolled groove couplings as the jointing method for diameters greater than 50mm and screwed joints for pipework 20mm to 40mm. All Infrastructure pipework will be galvanised medium weight with rolled grooved couplings.

Fire Hydrant Service

A Hydrant System will be provided in accordance with AS 2419.1 – 2005 and E1.3 of the BCA. The Buildings will be provided with a Combined Sprinkler / Hydrant System in accordance with AS 2118.6 – 1995.

Hydrants will also be provided internally as required to satisfy hydrant coverage where required. Hydrants will be located in fire stairs and on floor adjacent to fire compartments (Retail only) with hose reels as required.

Fire hydrant services shall be sized with adequate capacity to supply a minimum of 10 L/sec to each fire hydrant location and allowing for two (2) hydrants to operate simultaneously.

The number of operational hydrants is based on a maximum fire compartment size of less than $10,000m^2$.

The Booster Valve Assembly (as part of a combined Sprinkler / Hydrant booster) shall be provided adjacent to the main Foyer of both Residential Buildings or as otherwise agreed with Fire & Rescue NSW.

Pipework above ground will be medium weight galvanised steel pipework with rolled groove couplings as the jointing method.

Fire Hose Reel Service

A fire hose reel service will be provided in accordance with AS 2441 – 2005, E1.2 of the BCA.

Fire hose reel services shall be sized with adequate capacity to convey water supply to all connected fire hose reels, allowing for a minimum supply of 0.33 L/sec at each fire hose reel and for two (2) fire hose reels to operate simultaneously.

The Fire Hose Reel Service will form part of the domestic water supply system and will be connected to a combined Domestic Fire Hose Reel Pump.

Fire hose reel service reticulation shall be constructed from copper pipework and fittings.

Fire Detection and Alarm Service

An addressable fire detection and alarm system will be provided in accordance with AS 1670.1 with smoke detectors located in the Public Foyer Lobbies and inside of the Fire Stair for activation of Fire Stair Doors. The strategy will be to use the same non-proprietary system and open protocol system as the Basement System to enable integration with a Precinct Fire Alarm Strategy. The Fire Alarm System will also be monitored at the Precinct Basement Fire Control Room.

An addressable analogue Main Fire Indication Panel (MFIP) shall be provided in both Residential Buildings R8 & R9 Fire Control Centre of the main Foyers otherwise agreed as a Fire Engineered Strategy.

The FIP shall provide interface between the sprinkler and hydrant systems, smoke detectors and shut-down of the mechanical ventilation systems.

Building Occupant Warning System (BOWS)

A SSISEP (EWIS) is required in accordance with AS 1670.4 – 2004 and E4.9 of the BCA for both Residential Buildings R8 & R9. Notwithstanding this requirement, it is proposed to provide a Fire Engineered Solution to utilise a Building Occupant Warning System instead.

A Master Emergency Control Panel (MECP) shall be provided in the Fire Control Centre adjacent to the MFIP of both Residential Buildings R8 & R9. Speakers are to be provided in the Common Lift / Stair Lobby for each group of Apartments. A speaker is also to be provided adjacent to the front door within each Apartment.

The SSISEP / BOWS shall be activated by detection or sprinkler protection.

The MECP will be connected to the Precinct Basement Fire Control Room with a WIP Phone and a mechanism to enable a mass broadcast facility from the Precinct Basement Fire Control Room.

Portable Fire Extinguishers

Portable Fire Extinguishers will be provided in accordance with Table E1.6 of the BCA with selection and location in accordance with AS 2444.

1.4 Alternative Solutions

The following Alternative Solutions will be required:-

(i) Occupant Warning System instead of Sound System & Intercom System for Emergency Purposes with speakers located in the Lobby and inside the entry door of each Apartment. Speakers to achieve an output of 85 dBa.

(ii) Smoke Detection strategy for the Apartment Fire Stair Doors and Ground Floor Lobby – detection zoned to operate for each grouping of Apartments connected to a common Fire Stair.

(iii) Fire Hydrant strategy within Fire Stairs located behind normally open Fire Stair doors.

(iv) Alignment of pressure zoning with the Sprinkler System and Hydrant System.

(v) Exemption under AS 2419.1 Clause for fire rated surround to Fire Boosters based on sprinkler protected buildings.