Warren Smith & Partners

27 JULY 2018

ONE SYDNEY HARBOUR

Barangaroo South

Stage 1B Basement

FIRE SERVICES REPORT

Hydraulic Services Fire Protection Civil Engineering Sydney Water Accredited Water Servicing Co-ordinator and Designer

FIRE SERVICES REPORT

ONE SYDNEY HARBOUR

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04	April 2015	For Review
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APPROVALS

1.	I. Stone	Final Issue	I. Stone
REV#	**Author**	**Status**	**Reviewer**

PREPARED BY:

WARREN SMITH & PARTNERS PTY LTD
Consulting Engineers
ACN 002 197 088 **ABN** 36 300 430 126
Level 9, 233 Castlereagh Street
Sydney 2000 NSW Australia
T 02 9299 1312
www.warrensmith.com.au

PREPARED FOR:

LENDLEASE BUILDING

ABN 970 000 98 162

Level 14, Tower Three, International Towers Sydney
Exchange Place,
300 Barangaroo Avenue
Barangaroo NSW 2000

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1. FIRE SERVICES

The Fire Services that will be provided for the Basement area of Barangaroo South Stage 1B will include:-

- Fire Hydrant Service;
- Fire Sprinkler Service;
- Fire Hose Reel Service;
- Fire Detection & Alarm Service;
- Portable Fire Extinguishers.

NOTE: The Fire Hydrant & Sprinkler Service is provided as a combined Service.

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 Fire Water infrastructure consists of a centralised main pump and tank facility located in Basement Stage 1A.

The water supply is a Grade 1 supply as defined by AS 2118 and consists of an incoming town's main connection from the Authorities main in Hickson Road to a full inflow break tank and secondary full capacity water storage tank.

Multi-stage pumps feed three (3) separate pressure stage ring mains that feed the entire Stage 1A Precinct and will be extended to Stage 1B to feed all systems within that area. These mains are to be further extended within Basement 1B to feed the proposed Crown development adjacent to the Stage 1B site.

1.3 FIRE SYSTEMS

1.3.1 Fire Sprinkler System

- The entire Basement and incorporated Buildings are to be protected by an automatic sprinkler installation complying with the requirements of the NCC and relevant Standards.
- Water supply will be a Grade 1 supply based on the site wide fire water supply infrastructure.
- The System will be a combined Sprinkler / Hydrant System fed from the fire pumps in the Building Basement.
- Sprinklers will be wet type with the following classification and hazard ratings:-
  - Parking Areas – Ordinary Hazard 2
  - Storage Areas – Ordinary Hazard 3
  - Basement Loading Docks – Ordinary Hazard 3
- The number of operational sprinkler heads will be designed to suit the hazard classification as required by AS 2118.1 – 2017.
- All heads in ceiling voids, plantrooms and in other low priority areas are brass finish type with no escutcheon. Nickel coated sprinklers will be provided throughout the Carpark area.
- All heads fixed to the underside of suspended ceilings in Office areas and toilets located in the Basement will be semi-recessed sprinklers with two-piece white escutcheon plates.
- Sprinkler heads will be positioned to conform to an acceptable pattern and appearance.
- The Fire Brigade booster valve assembly for the Stage 1B Basement will be located to R2.
- Provision within the Basement will be made for the Residential Tower fire relay pumps if required.

1.3.2 Fire Hydrant & Fire Hose Reel System

- Fire Hose Reel and internal Building Fire Hydrant System supply service will be provided to the Building in accordance with Authority requirements and the BCA.
- The Fire Hydrant System will form part of a combined Sprinkler / Hydrant System in accordance with AS 2118.6 and will be a pressurised system fed from the main fire pumps located in Stage 1A.
- Pressure reducing valve sets will be included where necessary to contain the maximum pressure allowed by Fire & Rescue NSW.
- Hydrants will be located within the fire stairs on each Level throughout using 65mm hydrant valves with Storz couplings, plastic cap and chains or as required by the Fire Engineering Solution.

Supplementary fire hydrants will be located in the paths of egress where coverage cannot be achieved from fire hydrants located within fire stairs and fire passageways.

- Hose reels will be provided on each Level adjacent to the fire stairs using 36 metre hose reels or as required by the Fire Engineering Solution. Supplementary hose reels will be located in the paths of egress where coverage cannot be achieved from hose reels located adjacent to fire stairs and required exits.
- Hose reels will be a separate System fed and pressurised from the domestic water supply.

1.3.3 Smoke Detection & Alarm System

The Fire Indication Panel / Fire Control Panels will be compatible with the addressable smoke detection system to be provided and will be located in the R2 Fire Control Room in Stage 1B. The System will be fully compatible with the networked systems throughout the Precinct and will communicate with the main FCR located in Basement 1A via a fibre optic network loop. The Manufacturer of the fire panels will be Fire Sense 3300 Notifier Fire Panels (or equal) to enable the complete network between Stage 1A and 1B.

The System will interface with the following:-

- Addressable smoke detection system.
- Mechanical ventilation and smoke control system.
- Fire Sprinkler System monitoring (as applicable).
- Sound System & Intercom System for Emergency Purposes.
- BMS and Building Information System for monitoring purposes and information and alarm status display only.
- The Fire Indicator Panel (FIP) will provide 30% space capacity and be capable of receiving additional inputs (30% per floor) for tenant installed systems such as MASDS or sub-FIP's.
- System will be capable of accepting and interfacing with alternative suppression systems, ie gas suppression and/or pre-action for tenant communications rooms in localised areas.
- Smoke detectors will be provided in accordance with part 4 of AS 1668.1 pending finalisation of the Fire Engineered Solution.
- Smoke detectors will be generally photo optical type.
- A Colour Graphics PC and screen will be located in the Basement Fire Control Room.

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1.3.4 Sound System & Intercom System for Emergency Purposes (SSISEP)

The MECP will be located in the R2 Fire Control Room in Stage 1B. The Manufacturer of the fire panels will be the Vigilant Manufactured Fire Panels (or equal) to enable the complete low level WIP interface with Stage 1B Security Monitoring Room.

- A SSISEP will be provided throughout the Basement in accordance with the NCC and relevant codes to an open plan layout and to address other specialised spaces such as Plantrooms etc.
- The SSISEP will provide ordered, staged evacuation of the Building in the event of a fire alarm.
- A master evacuation control panel will be located adjacent to the FIP in the Basement 1B Fire Control Room.
- The system will incorporate Break Glass Alarm points and Warden Intercommunication Phones on every Level to communicate back to the Fire Control Room.
- A PA Facility will be at the MECP to allow announcements either floor by floor or the whole of the Building.
- A Warden Intercommunication Phone will be provided at a direct communication link to the Stage 1A Basement Master Emergency Control Panel.

1.3.5 Sound Operation & Interfaces

In the event of fire, the Fire Sprinkler System will automatically carry out the following functions:-

- Provide water discharge (at the required density);
- Interface with the Fire Indicator Panel;
- Interface with the SSISEP System via the Master Fire Indicator Panel;
- Interface with the BMS via the Master Fire Indicator Panel and Security System;
- Sound the local alarm;
- Transmit an alarm to the Fire Station; and
- Cause the air-conditioning and mechanical systems to operate in fire mode.

1.3.6 Fire Safety Engineering associated with Fire Services

The project will be designed and built in accordance with the requirements of the NCC. There will be instances through the design development process whereby NCC compliance will be gained via an engineered solution. Some instances where this will be developed include but are not limited to:-

- Location of the Fire Control Room in the Basement not within 300mm of the Ground Level;
- Evacuation zone segregation of sprinkler systems under the Residential Towers to limit the impact of a Basement fire.

- Provision of portable fire extinguishers in lieu of Fire Hose Reels in a room where fire hoses cannot pass through a fire / smoke door.

1.3.7 Portable Fire Extinguishers

- Portable Fire Extinguishers will be provided to the requirements of the NCC Fire Engineered Solution but as a minimum to also include Plantrooms.

1.3.8 Architectural Drawings

The following drawings have been reviewed and assessed by WS&P in respect of this development application:-

Drawing No.	Revision	Drawing Title
BB2_PA2_A000	Rev C	TITLE SHEET
BB2_PA2_A100	Rev C	BASEMENT PLAN – LEVEL B0
BB2_PA2_A101	Rev C	BASEMENT PLAN – LEVEL B1
BB2_PA2_A102	Rev C	BASEMENT PLAN – LEVEL B2
BB2_PA2_A103	Rev C	BASEMENT PLAN – LEVEL B3
BB2_PA2_A104	Rev C	BASEMENT PLAN – LEVEL B4
BB2_PA2_A105	Rev C	BASEMENT PLAN – LEVEL B5
BB2_PA2_A300	Rev C	SECTION 01
BB2_PA2_A301	Rev C	SECTION 02
BB2_PA2_A302	Rev C	SECTION 03
BB2_PA2_A303	Rev C	SECTION 04
BB2_PA2_A400	Rev C	BUILDING ELEMENTS - GROUND FLOOR
BB2_PA2_A401	Rev C	BUILDING ELEMENTS - PODIUM P1
BB2_PA2_A402	Rev C	BUILDING ELEMENTS - PODIUM P2
BB2_PA2_A501	Rev C	BUILDING ELEMENTS - ELEVATIONS