Our Ref: J120222

28 August 2012

Lend Lease
The Bond
30 Hickson Road
MILLERS POINT NSW 2000

Attention: Grant Eckett

Dear Grant,

Re: Commercial Building Development
Development Application Submission
BCA Capability Statement

Please find enclosed our Building Code of Australia Capability Report for inclusion with the Development Application submission.

Should you require any further information please do not hesitate to contact the undersigned.

Yours faithfully

Dean Morton
Director
for Vic Lilli & Partners Consulting

Encl.

VIC LILLI & PARTNERS - Accredited Building Certifiers
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A division of Mondan Management Pty Ltd ABN 60 119 432 094

BCA CAPABILITY REPORT

FOR

LEND LEASE

PREMISES

3 MURRAY ROSE AVENUE
SYDNEY OLYMPIC PARK

Date: 28 August 2012

Our Re: J120222

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1.0 – Executive Summary

This report has been prepared so as to assess the architectural documentation as detailed in Part 6 in accordance with the Building Code of Australia (BCA) 2012 and adopted standards.

The building, the subject of this report, is the redevelopment of an existing site, comprising a commercial building containing eight (8) levels in total including a two storey basement car park section.

This report will provide the consent authority with a BCA analysis to assist in the determination of the application.

2.0 – Property Description

2.1 - Location

The subject building is to be located at 3 Murray Rose Avenue, Sydney Olympic Park.

2.2 - Building Description

Use/Classification	• Class 5 – commercial/office • Class 7a – Car parking
Rise in Storeys	The development will have a rise of six (6) storeys
Floor Area	• Floor area limitations not applicable to sprinkler protected Class 7a (car park) portions. • The proposed floor area of the class 5 will not exceed the maximum prescribed floor area of 8,000m^2 for Type A construction to a single fire compartment
Volume	• Volume limitations not applicable to sprinkler protected Class 7a portions. • The proposed volume of the class 5 does not exceed the maximum prescribed volume of 48,000m^3 to a single fire compartment
Effective Height	The building will have an effective height of 21.08m
Type of Construction (BCA)	The building is to adopt Type A construction throughout
Climate zone	The building is located in climate zone 5 for energy efficiency measures

3.0 - Building Code of Australia Assessment

3.1 – Fire Resistance and Stability (Section C, BCA)

Item	Comment
Fire Resistance	The proposed building works, including both the superstructure and the various shafts and cores, will comply with the required fire resistance levels as specified in Specification C1.1 for Type A construction.
Compartmentation	Each floor in effect will be fire separated from the next to form separate fire compartments, the floor and structure are therefore to achieve a FRL of 120 minutes in general It is proposed to sprinkler the basements up to the lower ground floor level therefore the fire separation between sprinkler and non sprinkler protected parts will be formed by the floor slab separating the upper floor level and achieving a FRL of 120/120/120
Protection of Openings	The north elevation of the building and returning 3m back from the boundary on the east and west elevations are exposed within 3m of a fire source feature, the developer has advised it is proposed to address this via the imposition of an easement to the adjoining property and subject to a fire engineered solution at the construction certificate stage The opening formed between buildings at the lower ground floor level is to maintain the FRL of the wall as 120/120/120 by either sliding fire doors (a door located to each building) or with drencher protected fire rated shutters (subject to an alternate solution) It is noted a similar approach was adopted for the development at 5 Murray Rose Avenue.
Vertical separation of openings	Spandrel separation is required to the external facade of the building, it is noted that spandrels are not proposed to the upper ground floor area separated from the lower ground floor area, the developer has advised it is proposed to address this a fire engineered solution at the construction certificate stage
Fire hazard properties	The wall and floor linings must achieve the fire hazard properties stipulated in BCA Specifications C1.10 & Specification C1.10.

Protection of equipment.	It is proposed to separate equipment as nominated in the provisions of Clause C2.12 of the BCA in construction achieving an FRL of not less than 120/120/120, such equipment can comprise substations, smoke control equipment and lift motor rooms
Fire sealing of penetrations	All service penetrations must be sealed to the requirements of BCA Clause/Spec C3.15.

3.2 – Access & Egress (Section D, BCA)

Item	**Comment**
Number of exits required	The location and of extent of exits generally compliant, a minimum of 2 is required from the basement levels and one from above ground levels In the basement 03A level there is to be an egress path via the vehicle ramp in order to access the alternate exit basement 02B level, in this regard a handrail is required to be provided to the east side of the ramp and the ramp gradient is not to exceed 1:8
Exit travel distances.	The location and extent of exits is generally compliant with the following exceptions: • 45m to an exit and 70m between alternate exits to the eastern corner of the basement 02A level. • 42m to an exit from the north corner of basement 02B • 29m to a point in choice in travel from the gas meter room to the basement 01A level The developer has advised it is proposed to address this a fire engineered solution at the construction certificate stage It is noted a similar approach was adopted for the development at 5 Murray Rose Avenue

Distance between alternative exits	The distance between alternate exits is generally compliant with the following exceptions: • the distance between alternate exits in the basement 03A level (using the vehicle ramp) is approximately 70m, 60m being the maximum. • 70m between alternate exits to the eastern corner of the basement 02A level. • 64m between alternate exits from the north and of the lower ground floor B level The developer has advised it is proposed to address this a fire engineered solution at the construction certificate stage
Travel via fire isolated exits	Exits are formed by fire isolated exits are rising and descending flight within the same shaft converging at the lower ground floor level with the exists discharging dock entry location. The rising and descending flights are not smoke separated to the extent required at the level of convergence, in this regard the developer has advised it is proposed to address this a fire engineered solution at the construction certificate stage
Dimensions of exits.	Aggregate egress widths for the above ground commercial floors are to accommodate a population of 270 persons, in this regard each flight of the scissor stair arrangement is to have a clear unobstructed width of 1250mm (in lieu of 1500mm) throughout to the point of discharge. doors entering the stair are to have a clear unobstructed width of 1000mm The developer has advised it is proposed to address this a fire engineered solution at the construction certificate stage
Construction of Stairways.	The stair formed at the fire isolated passageway at the dock entry is to maintain the minimum 2.5m clear width, where egress is directed up the stair adjacent to the chase area there is to be a path formed to the road that does not exceed a gradient of 1:8 (or provide stairs) the path is not to result in the occupants having to travel within 6m of the external walls of the building All stairways will comply with requirements for treads, risers, landings and thresholds in accordance with clauses D2.13, D2.14 & D2.15 of the BCA respectively.

Egress Doors.	All required doorways will swing in the direction of egress and will be provided with the appropriate hardware in accordance with Clauses D2.20 & D2.21 of the BCA.
Electrical distribution boards	Electrical distribution boards located in the path of travel to an exit must be enclosed in a non-combustible enclosure and sealed to prevent the escape of smoke.
Balustrades	Balustrades must be provided for all areas where it is possible to fall more than 1m. Balustrades are to be designed in accordance with Clauses D2.16 of the BCA. Balustrades protecting a difference in levels of over 4m must not have horizontal elements between 150mm and 760mm of the floor that facilitate climbing.
Handrails	Handrails are to be provided to stairways as required by Clause D2.17 of the BCA, furthermore all internal stairs and ramps (excluding fire isolated stairs) are to have handrails that comply with clause 11 of AS 1428.1-2009, this is to include handrails both sides, closed back risers, contrasting nosing strips and tactile indicators.
Signage	Signage must be provided to all fire safety doors and to doors leading from enclosed stairways as required by BCA Clause D2.23.
Access for people with disabilities.	Access throughout the development appears to comply with the requirements contained within Part D3 of the BCA 2012, however the following item will require further consideration: • All stairs that are not fire isolated are required to comply with the requirements contained within AS1428.1-2009. As such, hand rails each side, turndowns, tactile indicators and 1m clear width must be provided on each stair. • fire isolated stairs are to have contrasting nosing's and solid back risers throughout the flight to AS 1428.1-2009 • lifts are to comply with Clause E3.6 with an internal car size of 1600mm x 1400mm Disabled access will be subject to a separate report confirming compliance by a specialist access consultant

3.3 – Services and Equipment (Section E, BCA)

Item	Comment
Hydrant Systems.	The building will be provided with a hydrant system in accordance with the provisions of Clause E1.3 of the BCA and AS 2419.1. The design of the service will be subject to a detailed review by a hydraulic consultant at the Construction Certificate stage, however it is expected compliance can be achieved by either DTS compliance or by alternate solutions
Hose Reel Systems.	The building will be provided with a fire hose reel system in accordance with the provisions of Clause E1.4 of the BCA and AS 2441. The design of the service will be subject to review by a hydraulic consultant.
Portable Fire Extinguishers.	Fire extinguishers will be provided in accordance the provisions of Clause E1.6 of the BCA and AS2444.
Smoke Hazard Management.	The building will be provided with an automatic smoke detection and alarm system in accordance with the provisions of Table E2.2a and Specification E2.2a of the BCA. The design of the service will be subject to review by a fire services consultant.
Emergency Lighting.	Emergency lighting will be provided throughout the building in accordance with Clauses E4.2 & E4.4 of the BCA and AS 2293.1. The design of the service will be subject to review by an electrical services consultant.
Exit Signs.	Exit signs will be provided throughout the building in accordance with Clauses E4.5, E4.6 & E4.8 of the BCA and AS 2293.1. The design of the service will be subject to review by an electrical services consultant.

Sprinklers	The development will require a sprinkler system throughout the car parking levels and including all parts of the lower ground floor level complying with Spec E1.5 of the BCA and AS 2118.1 The design of the service will be subject to review by a fire services consultant at the Construction Certificate stage however it is expected compliance can be achieved by either DTS compliance or be alternate solutions
Lifts	At least one lift is to incorporate a stretcher facility where serving a storey greater that 12m in effective height and otherwise comply with clause E3.6 for disabled access and usability.
Building Occupancy Warning system	A BOWS system is to be provided throughout the building in compliance with BCA Clause E2.2 (specification E2.2a) and clause 3.22 of AS 1670.1-2004

3.4 – Health and Amenity (Section F, BCA)

Item	**Comment**
Damp & Weatherproofing.	Adequate measures will be employed to ensure compliance Part F1 of the BCA is achieved in terms of weatherproofing.
Sanitary & Other Facilities.	Facilities will be provided in accordance with the provisions of Table F2.3 of the BCA. With regards to the highest demand being the levels above the upper ground floor level there is a population of 270 persons per floor based on table D1.13 of the BCA (based on open floor plan layout), the following facilities are required: pans urinals basins Males 7 4 5 Females 9 5 There is a unisex accessible facility to each floor and can be counted once for each sex, in addition an ambulant accessible cubicle is provided to each bank of male and female toilets

Ceiling height	The following minimum building ceiling heights must be maintained. • Corridor, passageway or the like – 2.1m • Bathroom, shower, sanitary compartment or the like – 2.1m • Habitable rooms including common areas – 2.4m • Stairways – 2.0m • Car parking areas – 2.2m • Disabled car parks – 2.5m
Sanitary Facilities for People with Disabilities.	Facilities will be provided in accordance with the provisions of AS1428.1 – 2009 for both accessible and ambulant facilities
Ventilation.	The building is required to be provided with ventilation in accordance with the provisions of Clause F4.5 of the BCA. Ventilation may be provided by natural means or a mechanical system complying with AS 1668.2-1991
Lighting.	Artificial lighting will be provided throughout the building in accordance with the provisions of Clause F4.4 of the BCA and AS1680.0.

3.5 – Energy Efficiency Construction (Section J, BCA)

The following BCA Section J National provisions will be applicable to the car parking levels and commercial areas.

Item	Comment
Building Fabric	The external fabric of the development with a conditioned space will be insulated in accordance with Part J1 of the BCA. In general R2.8 will be achieved to external walls and R3.2 to ceilings. Suspended floors at the car parking levels bounding conditioned space above are to have a minimum R1.0 to the underside of the slab (R2.0 where exhaust operates at more than 1.5 air changes per hour)
Glazing	The external glazing of the development with a conditioned space will have the appropriate U value and solar heat gain coefficiency in accordance with Part J2 of the BCA.
Building Sealing	The external fabric of the development with a conditioned space will be appropriately sealed in accordance with Part J3 of the BCA.
Air-Conditioning and Ventilation System	The air-conditioning and ventilation system of the development with a conditioned space will be designed to comply with Part J5 of the BCA.
Artificial Lighting and Power	The building is to maintain maximum lighting power levels and control systems as applicable. The design of lighting systems must comply with BCA Part J6. The following maximum lighting power loads (W/m^2) are applicable to the building • Car park - 6 • Car park entry zone (20m) - 25 • Common rooms, corridors - 8 • Entry lobby from outside - 15 • Control room, switch room - 9 • Plant room - 5 • Service areas & store rooms – 5 • General office - 9 (max) These rates are able to be adjusted as detailed in BCA Clause Table J6.2 where daylight or motion sensors or dimming systems are provided or in particularly small rooms.

Hot Water Supply	Hot water supply systems will be installed in accordance with Part J7 of the BCA and AS/NZS 3500.4.
Access for Maintenance	The building is to have facilities for maintenance and energy monitoring in compliance with BCA Part J8 and the NSW variations and include means of energy monitoring under clause J8.3

4.0 – Fire Safety and Other Measures

4.1 – Proposed Fire Safety Measures

In terms of the proposed works the following fire safety measures are proposed to be installed: -

Measure	Standard of Performance
Access panels, Doors and Hoppers to Fire-resisting shaft	BCA Clause C3.13
Automatic fail safe devices	BCA Clause C3.4, D2.21, AS 1670.1-2004
Automatic fire detection and alarm system	BCA Spec E2.2a, AS 1670.1-2004
Automatic fire suppression system (sprinkler) –	BCA Spec E1.5, AS 2118.1-1999
Emergency lighting	BCA Clause E4.2 & E4.4, AS 2293.1-2005
Exit signs	BCA Clause E4.5 & E4.8, AS 2293.1-2005
Fire dampers	AS/NZS 1668.1-1998
Fire doors	BCA Spec C3.4, AS 1905.1-2005
Fire hydrant systems	BCA Clause E1.3, AS 2419.1-2005
Fire Safety Engineering	**TBA**
Fire seals (protecting openings in fire resisting components of the building)	BCA Clause C3.15
Fire hose reel system	BCA Clause E1.4, AS 2441-2005
Lightweight construction	BCA Clause C1.8, BCA Spec C1.8
Portable fire extinguishers	BCA Clause E1.6, AS 2444-2001
Warning and operational signage (eg stairway notices)	BCA Clause D2.23 & E3.3, EP&A Act Form 15B

5.0 – CONCLUSION

5.1 – Conclusions

It is the opinion of this office that, on satisfaction of the above recommendation, the proposed building is capable of achieving compliance with the requirements of the Building Code of Australia (BCA) 2012 and relevant adopted standards without undue modification to the design or appearance of the building.

It is noted where non compliances have been identified as being addressed through alternate solutions these for the most part resemble the same design issues identified to the development at 5 Murray Rose Avenue and were able to be suitably justified.

Dean Morton
Director
Vic Lilli and Partners Consulting

6.0 - References

This BCA Capability report has been prepared on the basis of the following:-

(i) Architectural Plans as prepared by Turner and Associates

Drawing Schedule

For Assessment

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For Information Only

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EA701	Perspective View 02	D
EA702	Perspective View 03	D

(ii) Building Code of Australia (BCA) 2012;

(iii) Environmental Planning and Assessment Act, 1979, and Regulations.

(iii) Disability (Access to Premises-Buildings) Standards 2010

6.0 – REFERENCES