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& PARTNERS

North Eveleigh Rail Yard Site

Concept BCA Compliance Report

REPORT 2007/861 R3.0

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EXECUTIVE SUMMARY

Architects BATESSMART have prepared a concept design for the re-development of the North Eveleigh Rail Yard site. The project will involve the development of a large mixed use community precinct comprising retail, residential, commercial and cultural and community buildings. Existing buildings are proposed to be re-furbished having regard to heritage status and new use. The site is bound by Wilson Street to the north and railway lines to the south.

An assessment of the concept design has concluded it is capable of achieving compliance with statutory building code requirements.

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1. INTRODUCTION

Architects BATESSMART have prepared a concept design for the re-development of the North Eveleigh Rail Yard site. The project will involve the development of a large mixed use community precinct comprising retail, residential, commercial and cultural and community buildings. Existing buildings are proposed to be re-furnished having regard to heritage status and new use. The site is bound by Wilson Street to the north and railway lines to the south.

2. PURPOSE

The purpose of this report is to establish if the concept design is capable of complying with the requirements of the Building Code of Australia, 2007 ("BCA").

3. SCOPE AND LIMITATIONS

3.1. SCOPE

The scope of this assessment is limited to the design documentation referenced at Appendix E.

3.2. LIMITATIONS

The following limitations apply to the assessment:

- Potential liabilities arising under the provisions of the Disabilities Discrimination Act 1992, Occupational Health and Safety Act and the Construction Safety Act have not been addressed; and
- Detailed requirements of Australian Standards have not been considered.

4. STATUTORY FRAMEWORK

The statutory building code framework for the proposed development is set out under the Environmental Planning and Assessment Regulation 2000. The key requirements are summarised in the table below.

| Issue | Clause | Comment |
|--|--------|--|
| Level of fire-safety to be provided in existing buildings. | 94 | Mandatory requirement for the Council to consider the extent to which it will require fire-safety upgrading of existing buildings to achieve an adequate level of fire safety. Heritage conservation issues will need to be incorporated into the consideration. |
| Alterations and additions to existing buildings involving a change of use. | 143(1) | Upgrade Category 1 fire safety measures to BCA compliance (hydrants, sprinklers, smoke detection, and smoke hazard management). |
| New Work | 145 | All new works must comply |

5. METHODOLOGY

Review the provisions of the BCA and identify headline issues that need to be addressed in the design development phase to ensure the statutory compliance of the development from a building code perspective.

6. HEADLINE ISSUES

6.1. NEW BUILDINGS

The headline BCA issues for new buildings are summarised in the table below.

| Headline Issue | Commercial Buildings >25m in effective height | Residential Buildings >25m in effective height | All buildings <25m in effective height |
|-----------------------------------|---|--|---|
| Type of Construction | Type A throughout in accordance with Specification C1.1. | Type A throughout in accordance with Specification C1.1. | Type A throughout in accordance with Specification C1.1. |
| Compartment sizes | Max. 8000m ² floor area and 48,000m ³ volume in accordance with Table C2.2. | Compartment limitations do not apply to Class 2 buildings | Table C2.2 limits the following compartment sizes: <ul style="list-style-type: none"> Max. 8000m² floor area and 48,000m³ volume for commercial buildings Retail Building H1 max. 5000m² in floor area and 30,000m³ in volume Note compartment limitations do not apply to Class 2 buildings and 7a carpark provided with a sprinkler system. |
| Vertical Separation | Buildings are proposed to be protected by a fire sprinkler system which alleviates the need for spandrel separation | Buildings are proposed to be protected by a fire sprinkler system which alleviates the need for spandrel separation | Applies to buildings with Type A Construction <u>not</u> protected by a fire sprinkler system. Vertical separation is required to be provided in accordance with Clause C2.6. |
| Number of exits | Min. 2 exits serving every storey including basement in accordance with Clause D1.2. | Min. 2 exits serving every storey including basement in accordance with Clause D1.2. | At least one exit from each storey and at least the two exits provided from the basement in accordance with Clause D1.2. |
| Travel distances | 20m to point of choice, max. 40m to exit and max. 60m between alternative exits in accordance with Clauses D1.4 and D1.5. | 6m to exit or point of choice and max. 45m between alternative exits in accordance with Clauses D1.4 and D1.5. | 20m to point of choice, max. 40m to exit and 60m between alternative exits in accordance with Clauses D1.4 and D1.5. |
| Discharge of fire-isolated stairs | All fire-isolated exits must <u>independently</u> discharge to a road or open space in accordance with Clause D1.7. | All fire-isolated exits must <u>independently</u> discharge to a road or open space in accordance with Clause D1.7. | All fire-isolated exits must <u>independently</u> discharge to a road or open space in accordance with Clause D1.7. |
| Disabled Access | Required throughout in accordance with Part D3. | Not required to class 2 buildings and associated class 7a parts. However, it should be noted access may be required to be provided as a condition of the Development Consent which will be obtained at a later stage. | Required throughout in accordance with Part D3. |

| | | | |
|------------------------------|---|---|---|
| Essential Services | <p>All buildings are required to be provided with the following in accordance with Clause E2.2:</p> <ul style="list-style-type: none"> Automatic stair pressurisation complying with AS/NZS 1668.1 – 1998 A fire sprinkler system complying with AS2119.1 – 1999; and A zone smoke control system complying with AS/NZS 1668.1 – 1998. | <p>All buildings are required to be provided with the following in accordance with Clause E2.2:</p> <ul style="list-style-type: none"> Automatic stair pressurisation complying with AS/NZS 1668.1 – 1998; An automatic smoke detection and alarm system complying with Specification E2.2a; and A fire sprinkler system complying with AS2119.1 – 1999. | <p>Generally all buildings are required to be provided with an automatic smoke detection and alarm system complying with Specification E2.2a.</p> <p>Retail building H1 may require a smoke exhaust system.</p> |
| Light and Ventilation | <p>Artificial lighting to be provided throughout all buildings in accordance with Clause F4.4.</p> <p>Natural or mechanical ventilation to be provided throughout office floors in accordance with Clause F4.5 or F4.6.</p> | <p>Natural lighting to be provided to all habitable rooms of residential buildings in accordance with Clause F4.2.</p> <p>Natural or mechanical ventilation to be provided throughout residential buildings in accordance with Clause F4.5 or F4.6.</p> | |
| Energy Efficiency | Required throughout in accordance with Part J of BCA including any NSW variations. | Required throughout in accordance with Part J (including any NSW variations) and BASIX. | Required throughout in accordance with Part J of BCA including any NSW variations. |
| Atrium Provisions | <p>Atriums must comply with Part G3. Key compliance items are:</p> <ul style="list-style-type: none"> 6m horizontal diameter; Bounding construction 60/60/60 or wall wetting sprinklers for glass walls; Roof FRL 120/60/30 or protected with a fire sprinkler system; Smoke control system; Fire detection and alarm system; Emergency warning and intercommunication system; and Standby power system. | Proposed buildings do not contain atriums | Proposed buildings do not contain atriums |

6.2. EXISTING BUILDINGS

1. Conduct a detailed BCA audit having regard to the new use and works proposed;
2. Review existing essential fire-safety measures against the requirements of current Australian Standards;
3. Develop a fire-upgrading strategy that has regard to heritage conservation issues and reasonable cost/benefit outcomes.

7. CONCLUSIONS

The concept design is capable of achieving compliance with the BCA subject to compliance with the recommendations set out below.

8. RECOMMENDATIONS

1. Resolve limitations set out in Section 3.2;
2. Engage a specialist consultant to address disabled access issues on a site wide basis; and
3. Develop the design having regard to the headline issues and strategies identified in Section 6 as well as circumstances where an Alternative Solution may deliver a more effective building solution.

9. APPENDIX A – REFERENCED DOCUMENTATION

The documentation titled *“North Eveleigh Rail Yard Site Redfern Waterloo Authority – Preliminary EA Report”* dated December 2007, prepared by Bates Smart was used in the preparation of this Concept BCA Assessment Report.

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10. APPENDIX B – CONSTRUCTION DETAILS

| TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS | | | | |
|--|--|-------------|-------------|-------------|
| Building element | Class of building - FRL: (in minutes) | | | |
| | Structural adequacy/Integrity/Insulation | | | |
| | 2, 3 or 4 part | 5, 9 or 7a | 6 | 7b or 8 |
| EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any fire-source feature to which it is exposed is- | | | | |
| For loadbearing parts- | | | | |
| less than 1.5m | 90/90/90 | 120/120/120 | 180/180/180 | 240/240/240 |
| 1.5 to less than 3 m | 90/60/60 | 120/ 90/ 90 | 180/180/120 | 240/240/180 |
| 3 or more | 90/60/30 | 120/ 60/ 30 | 180/120/90 | 240/180/ 90 |
| For non-loadbearing parts- | | | | |
| less than 1.5 m | -/90/90 | - /120/120 | - /180/180 | - /240/240 |
| 1.5 to less than 3 m | -/60/60 | - / 90/ 90 | - /180/120 | - /240/180 |
| 3 m or more | - / - / - | - / - / - | - / - / - | - / - / - |
| EXTERNAL COLUMN not incorporated in an external wall, where the distance from any fire-source feature to which it is exposed is- | | | | |
| less than 3 m | 90/ - / - | 120/ - / - | 180/ - / - | 240/ - / - |
| 3 m or more | - / - / - | - / - / - | - / - / - | - / - / - |
| COMMON WALLS and FIRE WALLS | | | | |
| | 90/90/90 | 120/120/120 | 180/180/180 | 240/240/240 |
| INTERNAL WALLS- | | | | |
| Fire-resisting lift and stair shafts- | | | | |
| Loadbearing | 90/90/90 | 120/120/120 | 180/120/120 | 240/120/120 |
| Non-loadbearing | - /90/90 | - /120/120 | - /120/120 | - /120/120 |
| Bounding public corridors, public lobbies and the like- | | | | |
| Loadbearing | 90/90/90 | 120/ - / - | 180/ - / - | 240/ - / - |
| Non-loadbearing | - /60/60 | - / - / - | - / - / - | - / - / - |
| Between or bounding sole-occupancy units- | | | | |
| Loadbearing | 90/90/90 | 120/ - / - | 180/ - / - | 240/ - / - |
| Non-loadbearing | - /60/60 | - / - / - | - / - / - | - / - / - |
| Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of Combustion- | | | | |
| Loadbearing | 90/90/90 | 120/ 90/ 90 | 180/120/120 | 240/120/120 |
| Non-loadbearing | - /90/90 | - / 90/ 90 | - /120/120 | - /120/120 |
| OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS | | | | |
| | 90/ - / - | 120/ - / - | 180/ - / - | 240/ - / - |
| FLOORS | 90/90/90 | 120/120/120 | 180/180/180 | 240/240/240 |
| ROOFS | 90/60/30 | 120/ 60/ 30 | 180/60/30 | 240/ 90/ 60 |