

FORMIGA1

Concept Design Report

Project: Eco-Tourist Facility (Stage 1 - Arrival Village, Community Buildings 1 & 2 & Cabins)

Location: Greenstead Valley, 1551 Joadja Road, Joadja NSW 2575

Completed For: Pure Projects

On Behalf of: Fresh Hope Communities

Date: 29th November 2023 (Amended 18th December 2023)

Revision Number: --

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Revision Schedule				
Revision	Date	Report Information		
A	18/12/2023	Reason for Revision	Incorporation of Design Team Advice	
			Prepared by	Reviewed by
		Name	Shawn Brosnan	Scott Naylor
		Signature		

This report has been prepared and checked by the experienced team at Formiga1. For any queries regarding this report, please contact our office.

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1. Introduction

Formiga1 has been engaged by Pure Projects to provide a Concept Design review of the proposed Stage 1 Ec0-Tourist Facility including an Arrivals Building, 2 community Buildings and Accommodation structures.

The proposal to construct this new facility has a number of technical considerations to address as part of any proposed work. These have been developed by establishing a process for the assessment of the work outlined in the Environmental Planning and Assessment Act 1979. The Act gives a number of requirements and considerations for existing and new works and how the building assessment provisions are usually applied.

2. Purpose

The purpose of this report is to provide a design guide on an approach to building compliance for the building's concept development and establish scope for some of the aspects. The advice contained within this report provides guidance as to how BCA compliance can be achieved.

3. Scope and Limitations

The scope of this assessment is limited to the current design documentation and will require further development of the building's design. The aspects noted for compliance are based on generic examples gleaned from similar buildings that comply using a combination of prescriptive and performance measures. It should be expected that individual aspects will vary in any detailed design though wider concepts and characteristics will make a similar contribution, particularly to overall fire safety.

This report is limited to the design documentation supplied and is only intended to outline the services that will be required.

4. Approval Methodology

The Environmental Planning and Assessment Regulation 2021 outlines the approval processes for different types of buildings and the method by which they are assessed. These works have been assessed against the Building Code of Australia 2022 that is currently enforced. However, as a requirement of the EP&A Regulation, Section 19, the final design for approval is to be assessed against the BCA enforced at the date of the application for the Construction Certificate. Therefore, the advice provided in this report may become outdated if a revised BCA is released before the Application for a Construction Certificate is received.

The application of the Disability (Access to Premises) Standard and provision for access for people with disabilities will need to be addressed against the current BCA. As this is based in Commonwealth Legislation, State regulatory transitional provisions do not apply and compliance with the current code is required. Generally, compliance with BCA Part D4 will be required throughout.

5. Building Compliance

The assessment has been based on Architectural plans by Breathe Architecture, Project Number 1938, Received by us on 17th November 2023.

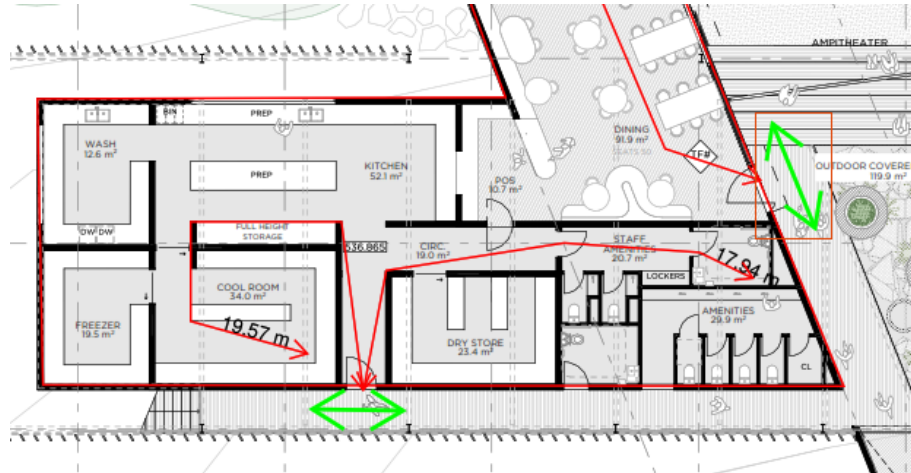
5.1. Principal Building Characteristics - Arrivals Building

Aspect	Building
Proposed Classification	Area 1 Restaurant/undercroft - Class 5/6 Area 2 Meeting/Lounge - Class 5/6 Area 3 - Extended Covered Roof - Class 10a
Rise in Storeys	Area 1 - Two (2) Area 2 - One (1) Area 3 - NA
Effective Height	Area 1 - 3m approx Area 2 - 0m Area 3 - NA
Construction Type	Type C
Compartment Limit	Fire Compartments - 2,000m ² or 12,000m ³
Actual Compartment Sizes	Area 1 - 450m ² Approx Area 2 - 250m ² Approx Area 3 - NA
Occupants	Occupant numbers will be determined based on the design intent of this building as this is more suitable than the table outlined in D2D18.
Design Philosophy	The Building is made up of 2 buildings (Area 1 & 2) covered by a “fly-over” roof structure providing additional shading and weather protection. The two buildings (Area 1 & 2) are designed as fully compliant buildings. The “fly-over” structure is an independent structure that has been design to not reduce the fire safety of the buildings it protects.

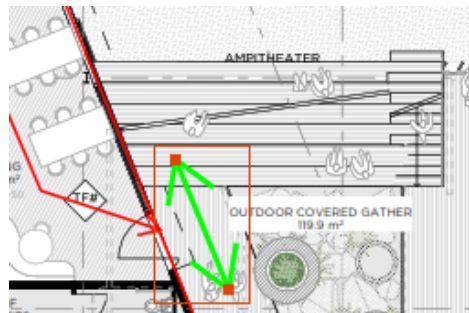
5.2. Building Code of Australia Assessment - Arrivals Building

1. This building is of Importance Level 2.
2. If the building is located in a flood hazard area, it is required to be designed in accordance with the ABCB's Construction of Buildings in Flood Hazard Areas 2012.3 Standard. The allotment does not appear to be flood prone in a preliminary review of the land.
3. The fire resistance level for the buildings are generally not required throughout, as the building areas are not exposed to Fire Source Features. (See note below)
4. **The independent buildings are separated by a minimum of 3m and the “fly-over” roof only provides additional cover for the buildings. The roof cover is a minimum of 450mm clear of the buildings and is designed to not spread fire between the buildings. As such the structure is satisfactory.**
5. Separation of classifications are not required as the higher FRL of the Class 6 areas are applied, though no FRLs are triggered for Class 6 buildings in this construction.
6. Boundary setbacks are greater than 3m and therefore not a fire resistance construction issue.
7. These buildings require a minimum of 1 exit from each storey. Compliance is shown.
8. Travel distances are 20m to a point of choice and 40m to an exit with the distance between alternative exits to be a maximum of 60m and a minimum of 9m. Compliance is shown.

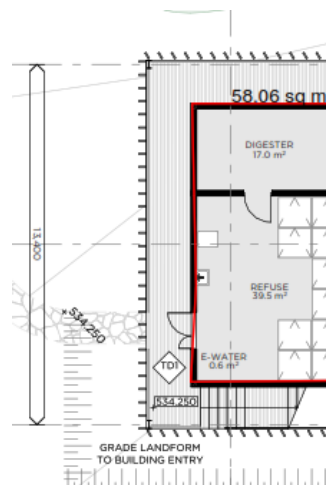
9. Minimum clear width for exits are 1m. Compliance is shown.
10. The egress from the upper level of the Class 5/6 Restaurant and Dining area is compliant as dual direction choice is provided within the dining area.



11. Walkway connection for the Dining Room discharge to the Amphitheatre steps is provided by trafficable paths and thus DtS discharge for compliance is obtainable;



12. Discharge from the lower level balcony to the outside is provided through an opening for DtS compliance. The balcony also provides additional choices both directions for compliance;



13. Installations in exits and path of travel must be smoke proofed in accordance with BCA Clause D3D8.
14. Stairs, landings, handrails are required to meet the provisions of the BCA and AS1428.1.
15. Balustrades are to be generally 1m in height.
16. This building is required to be accessible throughout and consideration should be given to:
 - a. Paths between buildings and to the boundary;
 - b. Circulation, accessways, ramps and stairs shall comply with AS 1428.1-2009;

c. Provision of TGSIs, Braille signage (including exits), and hearing augmentation.

17. The design has a 1:20 ramp nominated on the external balcony. Please note this is a “ramp” as defined in AS1428.1, but we understand this is going to be lowered in gradient to less than 1:20 to become a walkway and therefore compliant.

18. **Accessibility from the property boundary in accordance with AS1428.1 is not possible for DtS compliance. As such a performance solution will need to be developed demonstrating relevant compliance for the property and use. Lower Ground Floor would be considered exempt from access requirements due to the nature of the space.**

19. These buildings will require the following fire-fighting equipment:

a. Portable fire extinguishers.

***Note:** As the building areas 1 & 2 are two separate buildings, with a Class 10a structure connecting the two parts, this reduces the floor area of the building to <500m². Therefore, hydrant coverage is not triggered.*

20. Smoke detection will not be required for this building.

21. Provision of emergency lighting and illuminated exit signage will be required throughout the Class 6 building as it is greater than 300sqm. Further to this, where a required part of egress requires discharge on a stairway, emergency lighting is required to that stairway.

22. Facilities will be required in accordance with F4 calculated as a Class 5/6 parts for both staff and occupants.

23. The current facilities cater for 60 staff (based on 1 PWD Unisex and 1 WC for male and female) and 300 occupants (Based on 1 PWD unisex and 2WC's for both male and female) for all buildings.

24. Please note the current design uses a “gender” neutral unisex arrangement and only has one Ambulant facility nominated. As the design is not DtS compliant with the BCA, a Performance Solution demonstrates satisfactory compliance with the performance provisions is expected to be provided for showing compliance.

25. Facilities for people with disabilities (and an adjacent ambulant facility) will be required in accordance with AS1428.1 for DtS compliance. Compliance is shown.

26. Room ceiling heights will need to be a minimum of 2.4m.

27. Lighting and ventilation is required to all areas and can be provided through natural or artificial means.

28. Energy efficiency will be assessed by a suitability qualified consultant demonstrating compliance with either the Performance Provisions or a DtS method.

5.4. Principal Building Characteristics - Community Building 1

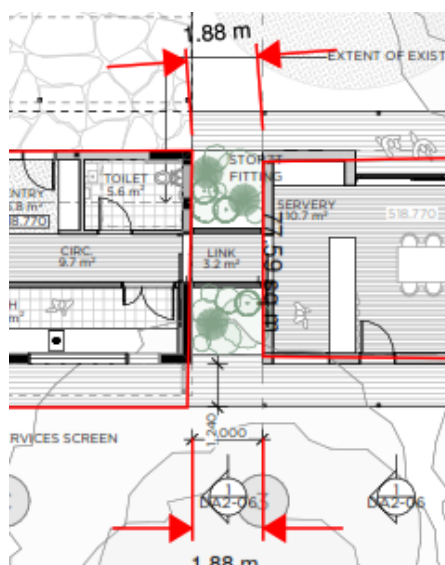
Aspect	Building
Proposed Classification	Accommodation Building (inc Verandahs) - Class 1b Meeting Room - Class 9b
Rise in Storeys	One (1)
Effective Height	0m
Construction Type	Type C
Compartment Limit	Fire Compartments Class 9b - 2,000m ² or 12,000m ³
Actual Compartment Sizes	Accommodation - 230m ² approx Meeting Room - 80m ² Approx
Occupants	Occupant numbers will be determined based on the design intent of this building as this is more suitable than the table outlined in D2D18.

5.5. Building Code of Australia Assessment - Community Building 1

29. This building is of Importance Level 2.
30. If the building is located in a flood hazard area, it is required to be designed in accordance with the ABCB's Construction of Buildings in Flood Hazard Areas 2012.3 Standard.

Class 9b Building Requirements

31. The fire resistance level for this building is generally not required throughout, as the building areas are not exposed to Fire Source Features. (See note below).
32. The Class 9b meeting room will be separated from the Class 1b by a FRL rated wall (Firewall rated in both directions) of a minimum 90/90/90 FRL. This FRL wall will then demonstrate suitable separation of the classifications for the distance of construction. The door in the firewall can be a -/90/30 FRL door and be held open with a localised hold-open device connected to a smoke detector on either side of the doorway within 1.5m of the doorway.



33. **The linkway will be considered part of the Class 1b building, and is adequately protected from the Class 9b by a FRL firewall rated in both directions.**
34. Boundary setbacks are greater than 3m and therefore not a fire resistance construction issue.
35. With the 3m separation of the buildings the Class 1b has no FRL separation issues.
36. The buildings require a minimum of 1 exit from each storey, as the Class 9b has less than 50 occupants.
37. Travel distances are 20m to a point of choice and 40m to an exit with the distance between alternative exits to be a maximum of 60m and a minimum of 9m. Compliance is shown.
38. Minimum clear width for exits are 1m.
39. **The building is required to be accessible throughout and it is acknowledged that access will be provided through the common area of the adjoining Class 1b building. Consideration should be given to:**
 - a. Circulation, accessways, ramps and stairs shall comply with AS 1428.1-2009. **The PWD Accessibility pathway through the Class 1b building is to be covered by a Performance Solution as access through the Class 1b would not be considered DtS for Vol1 of the BCA2022 ;**
 - b. Provision of TGSIs, Braille signage (including exits), and hearing augmentation.
40. **Accessibility from the property boundary in accordance with AS1428.1 is not possible for DtS compliance. As such a performance solution will need to be developed demonstrating relevant compliance for the property and use.**
41. This building will require the following fire-fighting equipment:
 - a. Portable fire extinguishers.
42. **Facilities (A single unisex PWD facility) has been provided within the Class 1b building. The location of the Accessible PWD within the Class 1b building is to be covered by a Performance Solution as access through the Class 1b would not be considered DtS for Vol1 of the BCA2022.**
43. Room ceiling heights will need to be a minimum of 2.4m.
44. Lighting and ventilation is required to all areas and can be provided through natural or artificial means.
45. Energy efficiency will be assessed by a suitability qualified consultant demonstrating compliance with either the Performance Provisions or a DtS method.
46. **Special Fire Protection Purposes are triggered under NSW G5D2 and G5D4 for the building and where the BAL exceeds 12.5 a Performance Solution by a Fire Engineer or Bushfire Consultant will be required.**

Class 1b Building Requirements

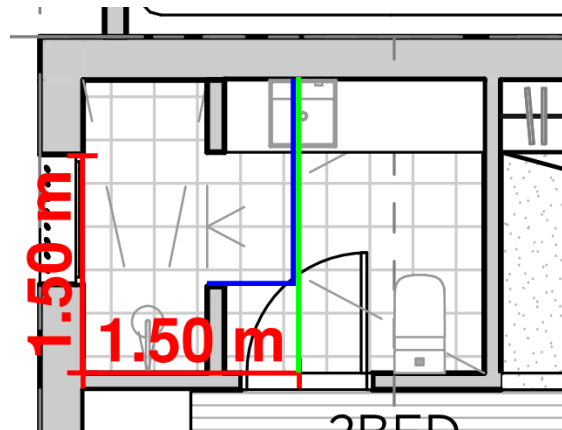
47. The building must remain less than 300 sqm and not provide accommodation to more than 12 persons. These provisions have been met by the design (230 sqm and 10 persons) but would be conditioned on the Occupancy Certificate for the building.
48. Construction will generally need to comply with the ABCB Housing Provisions or the relevant provisions of Section H of the BCA Volume 2 or a combination of both. **The following is an outline of identified issues for compliance with either of these options and it is expected to be provided at time of Building Approval Assessment.**
49. Structural compliance is expected with Part H1 and will most likely include Structural Engineer Designs and Certification.
50. External cladding and weatherproofing is expected to comply with Part H2.
51. As the external wall of the Class 1b is expected to have a minimum of 3m separation from the Class 9b building, the Class 1b has no FRL construction requirements.

52. Smoke alarms with emergency lighting are required to be provided throughout the building in accordance with Clause H3D6.
53. Health and amenities relevant to wet areas, ceiling heights, minimum facilities, light, ventilation, sound insulation and condensation management must be completed in accordance with Part H4 and the relevant ABCB Housing Provisions.
- 54. The following is advice relating to Shower design as this area of change within the new Standard is relevant for consideration. Compliance is expected with the DtS provisions but the details are provided for information purposes.**

The showers have been proposed to be unenclosed which requires waterstops to be located at 1500mm from the shower rose connection to the wall. The proposed design will result in a straight waterstop at the 1500mm point (green markup), but then the issue arises where there is no solid wall for waterproofing at the 1500mm point as the ensuite doors are located here. Or, a staggered waterstop out from the nib wall, then stepping out to 1500mm from the shower rose (blue markup).

Alternatively, a shower screen can be installed to only require the waterstop at the shower screen.

Additionally, openable windows have been proposed to the shower areas and are not permitted unless fixed closed, above 1800mm waterproof membrane or more than 1500mm from the shower rose connection to the wall.



- 55. The Class 1b building is required to have the following provisions required for BCA DtS compliance with the ABCB Housing Provisions:-**
- a. A kitchen sink and facilities for the preparation and cooking of food (Sink, microwave, cutlery, etc);
 - b. A clothes washing facility comprising at least one washtun and space for a washing machine in the same room; &
 - c. Any facilities detached from the building must be set aside for exclusive use of the occupants of this building.

It is noted that Items b & c are to be covered by a Performance Solution demonstrating the facilities will be provided in another building on the site and access to those facilities is satisfactory for compliance.

56. All stairs and balustrades must be compliant with Part H5.
57. The building must be constructed in accordance with the AS3959 Construction in Bushfire Prone Areas Standard.
58. Energy Efficiency must be completed in accordance with the NSW BASIX process and requirements.
- 59. PWD access in accordance with BCA Vol 1 for a Class 1b building is required to be applied. This requires a minimum of One (1) bedroom and one of each type of other room within the building to**

be accessible to AS1428.1. Compliance appears to be demonstrated for this building and the various rooms.

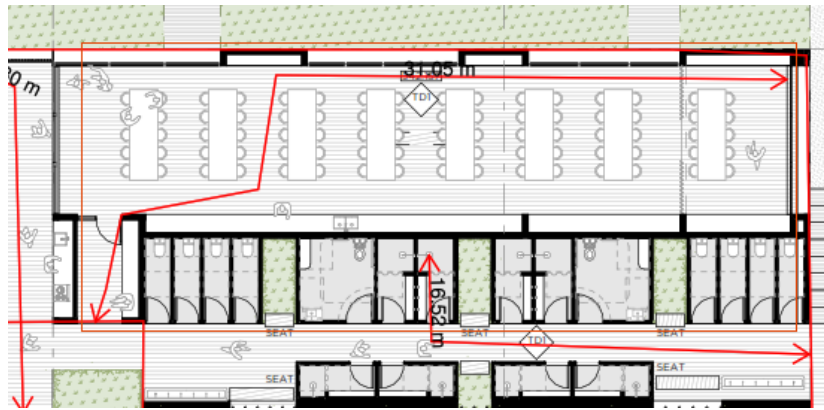
60. Accessibility from the property boundary in accordance with AS1428.1 is not possible for DtS compliance. As such a performance solution will need to be developed demonstrating relevant compliance for the property and use.

5.6. Principal Building Characteristics - Community Building 2

Aspect	Building
Proposed Classification	Class 9b
Rise in Storeys	Two
Effective Height	3.5m Approx
Construction Type	Type C
Compartment Limit	Fire Compartments - 3,000m ² or 18,000m ³
Actual Compartment Sizes	Total - 540m ² (Lower 155m ² & Upper 385m ²)
Occupants	Occupant numbers will be determined based on the design intent of this building as this is more suitable than table outlined in D2D18.

5.7. Building Code of Australia Assessment - Community Building 2

61. This building is of Importance Level 2.
62. If the building is located in a flood hazard area, it is required to be designed in accordance with the ABCB's Construction of Buildings in Flood Hazard Areas 2012.3 Standard.
63. The fire resistance level for this building is generally not required throughout, as the building areas are not exposed to Fire Source Features. (See note below)
64. The floor separating storeys must have a minimum 30/30/30FRL or have a fire-protective covering to the underside. All structural components supporting this floor must be equivalently FRL protected.
65. This building requires a minimum of 2 exits from the upper storey, as this floor has greater than 50 occupants.
66. Travel distances are 20m to a point of choice and 40m to an exit with the distance between alternative exits to be a maximum of 60m and a minimum of 9m.
67. Minimum clear width for exits are 1m.
- 68. The distance of travel to a single Exit point from within the community dining area is 30m. A second egress option is proposed to within the centre or right hand side of the floor plan. As such compliance is demonstrated.**



69. Stairs, landings, handrails are required to meet the provisions of the BCA and AS1428.1 as applicable. The amphitheatre stairways on either end of the building are not required as egress paths from the upper or lower level. As such they only require handrails for their own safety and use (Single sided).
70. Balustrades are to be generally 1m in height including where openable windows do not form a suitable barrier.
71. This building is required to be accessible throughout and consideration should be given to:
 - a. Paths between buildings and to the boundary;
 - b. Circulation, accessways, ramps and stairs shall comply with AS 1428.1-2009;
 - c. Provision of TGSIs, Braille signage (including exits), and hearing augmentation (If required for use).
72. **Accessibility from the property boundary in accordance with AS1428.1 is not possible for DtS compliance. As such a performance solution will need to be developed demonstrating relevant compliance for the property and use.**
73. This building will require the following fire-fighting equipment:
 - a. Fire hydrants - internal and external with a booster as the building is >500m² (pump likely required);
 - b. Fire hose reels (due to the provision of internal hydrants/ fire compartments >500m²);
 - c. Portable fire extinguishers.

If the overall building design is required to less than 500sqm, then fire hydrants and hose reels will not be required
74. Provision of emergency lighting and illuminated exit signage will be required throughout.
75. Facilities will be required in accordance with F4 calculated as a Class 9b part for both staff and occupants.
76. Facilities for people with disabilities (and an adjacent ambulant facility) will be required (Occupant numbers will need to be confirmed before calculations can be conducted).
77. Room ceiling heights will need to be a minimum of 2.4m, except for toilets which can be reduced to 2.1m.
78. Lighting and ventilation is required to all areas and can be provided through natural or artificial means.
79. Energy efficiency will be assessed by a suitability qualified consultant demonstrating compliance with either the Performance Provisions or a DtS method.
80. Special Fire Protection Purposes are triggered under NSW G5D2 and G5D4 for the building and where the BAL exceeds 12.5 a Performance Solution by a Fire Engineer or Bushfire Consultant will be required.

5.8. Principal Building Characteristics - Accommodation Cabins

Aspect	Building
Proposed Classification	Accommodation Cabins - Class 1b
Rise in Storeys	N/A
Effective Height	N/A
Construction Type	N/A
Compartment Limit	N/A
Maximum Compartment Sizes	N/A
Occupants	Occupant numbers will be determined based on the design intent of this building as this is more suitable than table outlined in D2D18.

5.9. Building Code of Australia Assessment - Accommodation Cabins

81. This building is of Importance Level 2.
82. If the building is located in a flood hazard area, it is required to be designed in accordance with the ABCB's Construction of Buildings in Flood Hazard Areas 2012.3 Standard.
83. The building must remain less than 300 sqm and not provide accommodation to more than 12 persons. These provisions have been met by the design (20 sqm and 2 persons) and all individual components are being considered as a "group" of Class 1b building. This would be conditioned on the Occupancy Certificate for the building.
84. Construction will generally need to comply with the ABCB Housing Provisions or the relevant provisions of Section H of the BCA Volume 2 or a combination of both. **The following is an outline of identified issues for compliance with either of these options and it is expected to be provided at time of Building Approval Assessment.**
85. Structural compliance is expected with Part H1 and will most likely include Structural Engineer Designs and Certification.
86. External cladding and weatherproofing is expected to comply with Part H2.
87. As the external walls of the Class 1b are expected to have a minimum of 1.8m separation from other Class 1b buildings, and thus do not have any FRL construction requirements.
88. Smoke alarms with emergency lighting are required to be provided throughout the building in accordance with Clause H3D6.
89. Health and amenity relevant to wet areas, ceiling heights, minimum facilities, light, ventilation, sound insulation and condensation management must be completed in accordance with Part H4 and the relevant ABCB Housing Provisions.
90. **The following is advice relating to Shower design as this area of change within the new Standard is relevant for consideration. Compliance is expected with the DtS provisions but the details are provided for information purposes.**

The showers have been proposed to be unenclosed which requires waterstops to be located at 1500mm from the shower rose connection to the wall. The proposed design will result in a straight waterstop at the 1500mm point (green markup), but then the issue arises where there is no solid wall for waterproofing at the 1500mm point as the ensuite doors are located here. Or, a staggered waterstop out from the nib wall, then stepping out to 1500mm from the shower rose (blue markup).

Alternatively, a shower screen can be installed to only require the waterstop at the shower screen.

Additionally, openable windows have been proposed to the shower areas and are not permitted unless fixed closed, above 1800mm waterproof membrane or more than 1500mm from the shower rose connection to the wall.

91. The Class 1b building is required to have the following provisions required for BCA DtS compliance with the ABCB Housing Provisions:-

- a. A kitchen sink and facilities for the preparation and cooking of food (Sink, microwave, cutlery, etc);
- b. A clothes washing facility comprising at least one washtun and space for a washing machine in the same room; &
- c. Any facilities detached from the building must be set aside for exclusive use of the occupants of this building.

It is noted that Items a, b & c are to be covered by a Performance Solution demonstrating the facilities will be provided in another building on the site and access to those facilities is satisfactory for compliance.

92. All stairs and balustrades must be compliant with Part H5.
93. The building must be constructed in accordance with the AS3959 Construction in Bushfire Prone Areas Standard.
94. Energy Efficiency must be completed in accordance with the NSW BASIX process and requirements.
95. PWD Access in accordance with BCA Vol 1 for a Class 1b building is required to be applied. (10 Cabins provided). This requires a minimum of One (1) bedroom and one of each type of other room within the building/group to be accessible to AS1428.1. **Compliance is to be demonstrated with the use of a Performance Solution showing that the overall site provides a suitable PWD accessible solution.**
96. **Accessibility from the property boundary in accordance with AS1428.1 is not possible for DtS compliance. As such a performance solution will need to be developed demonstrating relevant compliance for the property and use.**

5.10. Fire Engineering Performance Solution Comments

A number of non-compliant DtS items were identified in this assessment and could be considered to be resolved by adopting a fire engineered solution for the proposed development. These items are as follow:

1. NSW BCA Clause G5P1 & G5P2 - Bushfire construction for a Class 9b where the BAL exceeds 12.5.

If these options are considered, please ensure the required reports/documentation necessary to demonstrate compliance are provided in accordance with NCC BCA A2G2(4) and the ABCB "*Development of Performance Solutions*".

5.11. Additional Performance Solution Comments

The following Performance Solutions (Non-Fire Engineered) are required for this project and are as follows:-

1. BCA Clause F3D5 - A non-compliant DtS wall cladding system is proposed for this building and compliance with F3P1 or F3V1 is required.
2. BCA Clause D4D2 - PWD accessibility from the property boundary for all buildings **and the use of all buildings as a single group/entity.**
3. BCA Clause H4P3 - **Location of** the minimum required facilities for Class 1b buildings including kitchens and laundries.

If these options are considered, please ensure the required reports/documentation necessary to demonstrate compliance are provided in accordance with NCC BCA A2G2(4) and the ABCB *“Development of Performance Solutions”*.

6. Conclusion

This report provides an assessment of the referenced architectural documentation against the Environmental Planning and Assessment Act, referenced Australian Standards, as well as, the Performance Requirements and the Deemed to Satisfy provisions of the National Construction Code Series, Building Code of Australia (Volume 1) for the proposed development.

Key compliance issues have been identified through this assessment. These issues are to be resolved prior to the approval stage by means of; Performance Solutions, altered design documentation or clarification of information on building plans.