

# FIRE ENGINEERING CONCEPT REPORT

Jordan Springs

**Tavern Rollout**

FDC Construction & Fitout (NSW) Pty Ltd

13 July 2020

Revision C

20012-FEC-001

# MINERVA

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## DOCUMENT CONTROL

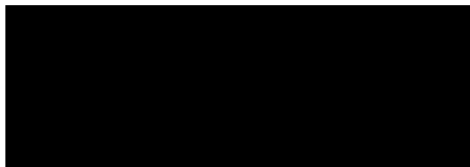
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Client	FDC Construction & Fitout (NSW) Pty Ltd
Client ABN	72 608 609 427

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## EXECUTIVE SUMMARY

### Summary

This Fire Engineering Concept Report has been undertaken to support the Development Application of the new Jordan Springs Tavern.

The report demonstrates that compliance with the Relevant Performance Requirements of the BCA can be achieved through the development of Performance Solutions which are appropriately designed, installed, commissioned and maintained.

### Project Description

The project involves the construction of a Class 6 and Class 9 building featuring dining, gaming and function spaces.

The building design will include several features that do not comply with the Deemed-to-Satisfy Provision of the BCA and these items will be supported by Performance Solutions at the next stage of the works.

### Summary of Performance Solutions

The table below provides a summary of the DtS non-compliance and the Performance Solution that is implemented.

No.	BCA DtS Clause	Description of Non-Compliance
1.	E1.3 – Fire hydrants	The fire hydrant booster is positioned such that it is not within sight of the main entrance of the building.
2.	E1.4 – Fire hose reels	Fire hose reels will not be provided throughout the development.

### Conclusion

It is the finding of this report that the building design is capable of compliance with the Performance Requirements of the BCA through use of appropriate performance solutions.

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## 1. INTRODUCTION

### 1.1 Report Purpose

This report has been produced to support the Development Application (DA) for the new Jordan Springs Tavern at Lakeside Parade, Jordan Springs NSW 2747 (Lot 3989 of DP 1190132).

The purpose of this report is to outline the following:

- The scope of works and relevant project stakeholders
- The principal characteristics of the project and building occupants
- An overview of the building features that will not comply with the Deemed-to-Satisfy (DtS) Provisions of the BCA
- A summary of the Performance Solutions that may be adopted to support the design
- Any applicable assumptions, dependencies or limitations

### 1.2 Project Scope

Minerva Management Group Pty Ltd has been appointed by FDC Construction & Fitout (NSW) Pty Ltd to review the following deviations from the BCA Deemed-to-Satisfy (DtS) Provisions:

Table 1 – Scope of BCA DtS Deviations

No.	BCA DtS Clause	Description of Non-Compliance
1.	E1.3 – Fire hydrants	The fire hydrant booster is positioned such that it is not within sight of the main entrance of the building.
2.	E1.4 – Fire hose reels	Fire hose reels will not be provided throughout the development.

## 1.3 Relevant Project Stakeholders

The relevant project stakeholders are as follows:

Table 2 – Relevant Project Stakeholders

Role	Name	Company	Contact Details
Client	Peter Stait	FDC Construction & Fitout	02 9233 7112
BCA Consultant	Dean Goldsmith	Blackett Maguire & Goldsmith	02 9211 7777
C10 Fire Safety Engineer	Eliot Reeves	Minerva Management Group	0410 491 677

## 1.4 Fire Engineering Process

The IFEG outline the process by which Fire Engineering analysis is undertaken when assessing deviations from the DtS Provision of the BCA.

This step by step process enables fire safety professionals to undertake a consistent approach such that the inputs to the Performance Solution are transparent and the outcomes can be understood by the community.

The methodology outlined in the IFEG has been adopted in this Concept Report.

## 2. REFERENCE INFORMATION

### 2.1 Regulatory Framework

The following New South Wales Legislation is applicable to the project:

- NSW Environmental Planning & Assessment Act 1979 and subsequent amendments
- NSW Environmental Planning & Assessment Regulation 2000 and subsequent amendments

### 2.2 References

The following reference material is applicable to this report:

- [1] Volume One of the Building Code of Australia 2019 (BCA), Australian Building Codes Board, 2019
- [2] Guide to the BCA 2019, Australian Building Codes Board, 2019

### 2.3 Design Information

The engineering analysis document in this FER is based upon the following information:

- [3] Email exchanges between Minerva Management Group and FDC Construction & Fitout
- [4] Architectural drawings outlined in the table below:

Table 3 – Architectural drawings

Drawing Number	Drawing Title	Author	Revision	Issue Date (DD/MM/YYYY)
930 SK-000	Site Isometric	Team 2 Architects	—	—
930 SK-001	Sketch Site Plan	Team 2 Architects	12	01/07/2020
930 SK-002	Sketch Ground Floor Plan	Team 2 Architects	16	03/07/2020

## 3. PRINCIPAL BUILDING CHARACTERISTICS

### 3.1 Building Location

The proposed building will be located at Lakeside Parade, Jordan Springs NSW 2747 (Lot 3989 of DP 1190132) as illustrated below:



Figure 1 – Building Location

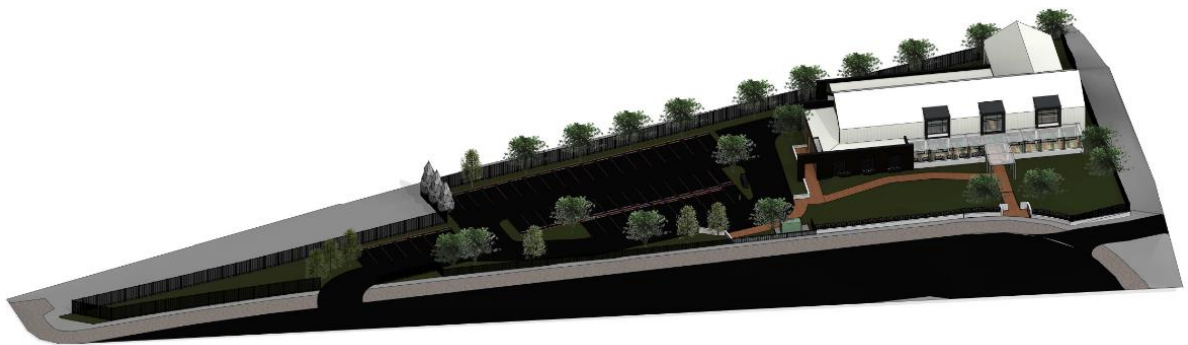


Figure 2 – Building Image



## 3.2 Building Layout

The building consists of a single storey with an outdoor carpark as illustrated below. The building has a total floor area of >500m<sup>2</sup>.

### 3.2.1 Site Plan



Figure 3 - Site Plan

## 3.2.2 Ground Floor

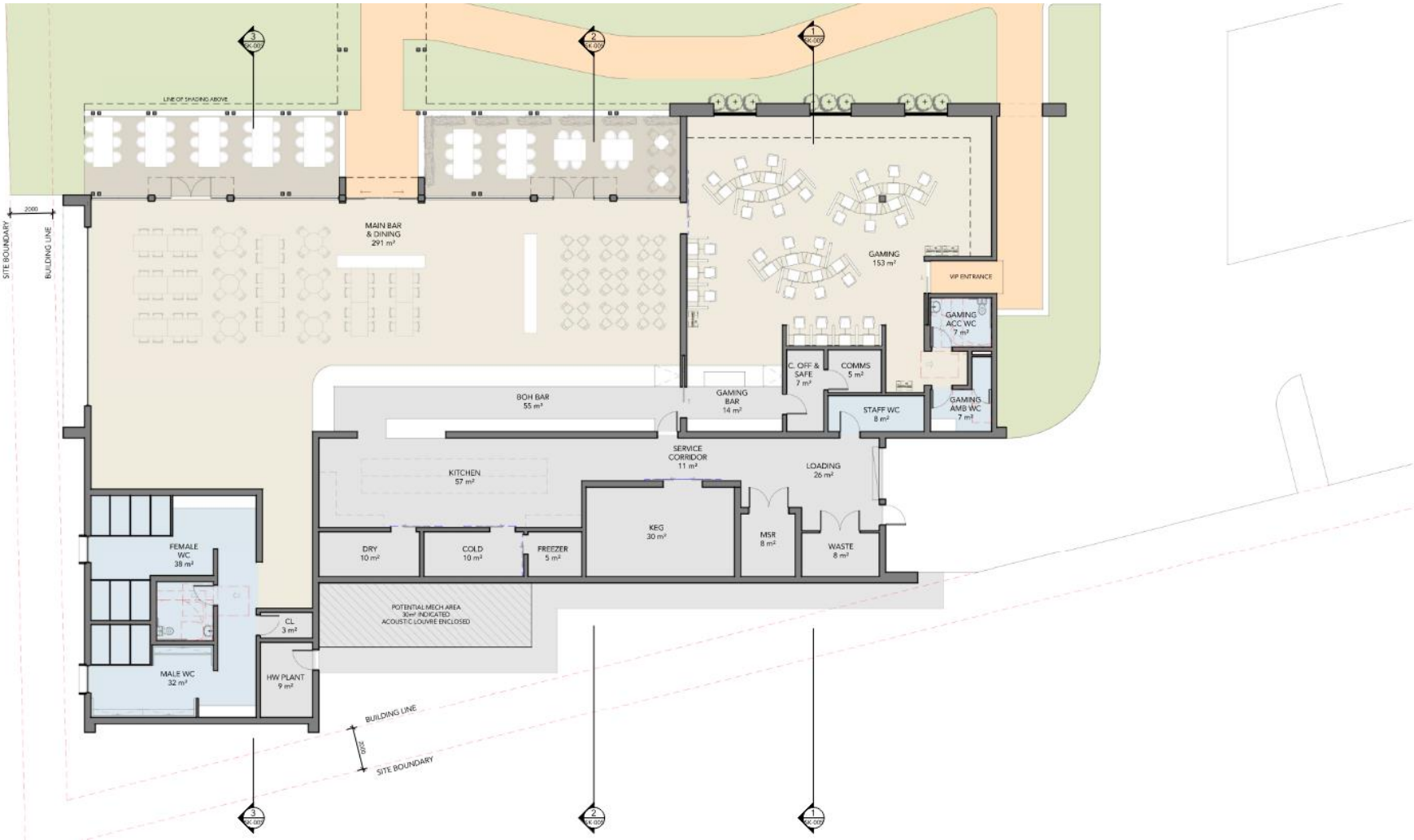


Figure 4 – Ground Floor

### 3.3 BCA DtS Reference Criteria

The BCA DtS reference criteria is summarised in the table below:

Table 4 – BCA DtS Reference Criteria

BCA Clause	Item	Description or Requirements
A6.0	Classification	Class 6 – Restaurant and bar Class 9b – Function and gaming
C1.1	Construction Type	C
C1.2	Rise in Storeys	1
Schedule 3	Effective Height	<25 m

### 3.4 Fire Hazards and Preventative and Protective Measures

The table below examines the fire hazard and mitigation measures that are in place.

Table 5 – Fire Hazards and Protective and Preventative Measures

Area	Fire Hazards	Mitigation Measures
Restaurant and bar Class 6	Ignition Sources	Preventative Measures
	– Electrical faults	– Staff and security
	– Lighting faults	– Housekeeping
	– Equipment faults	– Maintenance of equipment
	– Cooking equipment	
	Fuel Load	Protective Measures
	– Chairs, tables, other furniture	– Portable fire extinguishers
	– Linings and coverings	– Fire hydrants
	– Books, folders, paper	– Automatic smoke detection
	– Storage cabinets	
– Rubbish bins		
Function and gaming Class 9	Ignition Sources	
	– Electrical faults	
	– Lighting faults	
	– Equipment faults	
	Fuel Load	
	– Chairs, tables, other furniture	
	– Linings and coverings	
	– Gaming machines	
– Rubbish bins		

## 4. OCCUPANT CHARACTERISTICS

### 4.1 Building Occupants

#### 4.1.1 Population

The building will incorporate a maximum population of 212 persons.

#### 4.1.2 Expected State, Attributes and Familiarity

The table below provides the expected condition of staff and occupants:

Table 6 – Building Occupant Profile

Occupant Type	State	Physical and Mental Attributes	Building Familiarity and Emergency Training
Staff member	Conscious and sober	Mobile and mentally alert	Familiar with surroundings and appropriately fire safety trained to assist in occupant evacuation and first-aid fire-fighting.
Patron	Conscious and potentially intoxicated	Mobile and alert	Not familiar with surroundings requiring direction from staff members. Not fire safety trained.
Contractor (carrying out maintenance, etc)	Conscious and sober	Mobile and mentally alert	Contractor will complete detailed fire safety training as part of the building management system. Trained in emergency evacuation procedures.

## 5. SUMMARY OF PERFORMANCE SOLUTIONS

### 5.1 General

This section presents a summary of the proposed performance solutions and Fire Safety Design that must be implemented to demonstrate that the building meets the Performance Requirements of the BCA.

### 5.2 Application of the DtS Provisions

Any building feature that is not referred to or affected by this report will comply with the 'Deemed-to-Satisfy' provisions of the BCA, relevant Australian Standards, National, State and local legislation as applicable other than existing items not required to be upgraded.

### 5.3 Proposed Performance Solutions

The table below outlines the proposed performance solutions the outcomes of which will be incorporated into the building design to demonstrate compliance with the BCA.

Table 7 – Proposed Performance Solutions

Item	DtS Clause	Summary of Non-Compliance	Engineering Analysis	Design Outcome
1.	E1.3 – Fire hydrants	The fire hydrant booster is positioned such that it is not within sight of the main entrance of the building.	Engineering analysis will demonstrate that the positioning of the fire hydrant booster will not interfere with Fire Brigade operations	The Fire hydrant booster may be located as required. Signage and strobe lighting will be provided to indicate the location of the Fire Hydrant Booster.
2.	E1.4 – Fire hose reels	Fire hose reels will not be provided throughout the development.	The analysis will demonstrate the provision of extinguishers provides an equivalent level of occupant safety and ability to instigate first-aid fire fighting	Hose reels need not be provided throughout the building.

## 5.4 Building Management

To support the requirements of the Performance Solution the building owner will be responsible for producing a fire safety management plan. This plan must include requirements for mitigating the risk of fire load build up along egress routes and regular inspections should be undertaken.

## 5.5 Approval and Certification

For construction compliance the fire safety measures outlined above should be appropriately designed, installed and commissioned prior to occupation. Certification will be required from all designers, installers and suppliers confirming compliance with the requirements of this report.

## 6. CONCLUSION

The Jordan Springs Tavern will be constructed at Lakeside Parade, Jordan Springs NSW 2747 (Lot 3989 of DP 1190132).

The design will include a number of building features that do not strictly comply with the BCA DTS Provisions and as such a Performance Solution will be implemented to ensure compliance with the BCA Performance Requirements.

Based upon the findings of this report, the building design is feasible and can comply with the BCA through the development of a Performance Solution.

## 7. LIABILITY AND LIMITATIONS

### 7.1 Liability

This Fire Engineering Report is applicable to the Jordan Springs Tavern at Lakeside Parade, Jordan Springs NSW 2747 (Lot 3989 of DP 1190132) only.

It should be recognised that this report does not provide a guarantee that a fire will not occur with potential to cause casualties or damage.

Minerva Management Group cannot be held liable for any loss or damage resulting from any defect of the building or its services or equipment or for any non-compliance of the building or its services or equipment with any legislative or operational requirement, whether or not such defect or non-compliance is referred to or reported upon in this report, unless such defect or non-compliance should have been apparent to a competent engineer undertaking the assessment of the type undertaken for the purpose of preparation of this report.

The fire safety assessment and recommendations has been based on the building architectural layouts and the information detailed Section 2 – Reference Information. Any change in this information to suit future building works or re-organisation will require further analysis to confirm compliance with the regulations and our reports.

### 7.2 Limitations

This report does not provide guidance in respect of areas, which are used for bulk storage, processing of flammable liquids, explosive materials, multiple fire ignitions or sabotage of existing fire safety systems.

Minerva Management Group has compiled this report based on the reference information listed in Section 2.

Potential incendiary risks are limited in the scope of engineering design. Conventional building design can only provide limited protection against malicious attack; for example, large scale incendiary and multiple ignition sources can potentially overwhelm some fire safety systems.

Strategies such as security, housekeeping and other management procedures may be more effective than additional fire protection measures in addressing arson events.