ATTACHMENT H

# Investigation – Infrastructure Assessment

# Leader Street Bakery Code Amendment Infrastructure Assessment

## Leader Street Bakery Code Amendment Infrastructure Assessment

Prepared For:
Harmony Property Investments

Prepared By:
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# Status

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# Contents

# 1. Introduction

## 1.1. Purpose & scope

The purpose of this document is to detail the specific existing conditions of the Goodman Fielder Site located at 4 Leah Street Forestville and establish the infrastructure requirements for future multi building/ multi storey residential class 2 development

This document details the extent of engineering services included in BSE's Scope Review of existing services infrastructure (electrical, telecommunications, water supply, sewerage and Gas) servicing the site currently tenanted by Goodman Fielder and evaluating suitability for a change of use to predominantly multi storey residential with potential small scale non residential uses. relating to:

- Electrical services
- Communication service
- Fire services
- Hydraulic services

## 1.2. Referenced documents

| | |
|---|---|
| AS/NZS 3000 | Wiring rules |
| AS 3008 | Selection of cables |
| AS/NZS 3500 | National plumbing and drainage codes, part 1-5 |
| AS 1680 | Interior lighting |
| AS 1668 | The use of ventilation and air conditioning in buildings |
| AS 2444-2001 | Portable fire extinguishers and fire blankets |
| AS 2441 | Installation of fire hose reels where upgraded |
| AS 2419 | Fire hydrant installation |
| AS/ NZS 2293 | Emergency lighting and exit signage |
| | Building Code of Australia |
| | Workplace Health and Safety regulations |

# 2. Electrical Services

## 2.1. Existing Electrical Infrastructure

The Goodman Fielder site is currently provided with power from an above ground transforer located on the upper level of the existing warehouse on Leader Street. The Transformer is supplied by the SAPN 11kV network via transmission cables also on Leader Street. Currently the transformer provides in excess of 1500kVA site.

*Figure 1 - Existing SAPN Transformer (Leader Street)*

Based on the age and location of the transformer it is unlikely that any potential reuse for future development will be possible. As such a complete abandonment of the existing transformer will be required prior to the construction of the new facility.

## 2.2. Proposed Electrical Infrastructure

As part of the assessment and based on the current electrical standard AS3000 “Wiring Rules” and NCC 2022 a maximum demand based on the proposed density layouts and services has been conducted. Based on a assumed high density application and associated carparking and the recent addition to of Electric Vehicle charging station requirement to class 2 apartment buildings the overall maximum demand for the site is as follows.

| Building Designation | Maximum Demand (kVA) |
|---|---|
| High Density Application | 500 |
| Carpark (Including EV Charging) | 670 |
| 25% Spare Capacity | 290 |
| Total | 1460 |

As part of the above calculation no diversity of operation has been allowed for the EV charging which make up approximately 90% of the total carpark electrical requirements. In Addition there are numerous manufacturers of smart charging systems that can undertake load shedding and/or increase the amount of power allocated to car changing during times when power to the site is more abundant (generally overnight).

Based on the above it can be seen that future development is not likely to exceed the current power currently being delivered to site. Please refer to appendix A for details of indicative electrical maximum demand.

## 2.3. SAPN Infrastructure

SAPN have indicated that as the project is not currently under consideration for construction in the immediate future that no assessment of infrastructure is required. Upon application of a submission for a power supply augmentation an assessment of the existing infrastructure will be made. Furthermore as the indicative maximum demand does not exceed the current demand a future change of use is suitable for this site.

Additionally based on the current plans to undertake construction of the former Le Cornu Site it is unlikely that at the time of works commencing on the current Goodman Fielder Site that the current electrical infrastructure will still be in its current form.

As such based on the above the current power supply being delivered to site is sufficient for future residential schemes.

## 2.4. Telecommunications Infrastructure

The current site is served by a single NBN connection located on Leah Street. This existing connection is likely unsuitable for any future development and will be required to be altered in the future to suit any changes to the site. As such NBN have indicated that any changes to connections will be assessed during detailed documentation period, however there is existing infrastructure within the area that could be utilised for any future development.

# 3. Hydraulic Services

## 3.1. Existing Hydraulic Infrastructure

Currently the existing site is serviced by three (3) metered connections located on First Avenue (50mm metered connection), Leader Street (20mm metered connection) and on Leah Street (50mm metered connection).

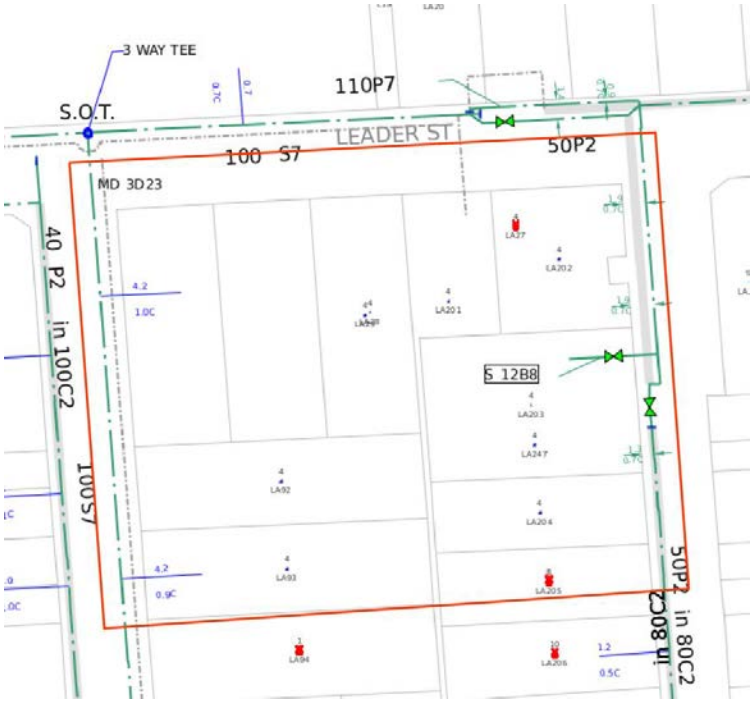

*Figure 2 - Existing Metered Connections*

The site is also serviced by  eight (8) Sewerage connections. A 100mm connection that enters the sewer main on First Avenue, a 100mm connection on Leah Street, and an additional six (6) connections that were installed to the site pre 1930 that the dimensions are unknown.


*Figure 3 -Existing Sewerage Connections*

The existing sewer mains on both Leah Street and Leader Street are 300mm diameter reinforced concrete pipes whilst the construction of the 150mm pipe within First Avenue is unknown.

Gas is currently provided to site via 2 off existing metered connection from the existing medium pressure mains located within Leader Street and Leah Street. Both mains are 80mm.




## 3.2. Proposed Hydraulic Infrastructure

The existing metered connections for the site are adequate to suit future residential development. Based on current Australian Standards no additional water supplies will be required to the building for domestic water supply. See below calculations based on indicative 1,2 & 3 Bedroom Units and allowances made for said apartments..

| 1 Bedroom Apartment | | 2 Bedroom Apartment | | 3 Bedroom Apartment | |
|---|---|---|---|---|---|
| 1 x Basin | | 1 x Basin | | 2 x Basin | |
| 1 x Shower | | 1 x Shower | | 2 x Shower | |
| 1 x Toilet | | 1 x Toilet | | 2 x Toilet | |
| 1 x Sink | | 1 x Sink | | 1 x Sink | |
| 1 x Dishwasher | | 1 x Dishwasher | | 1 x Dishwasher | |
| 1 x Washing Machine | | 1 x Washing Machine | | 1 x Washing Machine | |
| 1 x Laundry Trough | | 1 x Laundry Trough | | 1 x Laundry Trough | |
| Total (Loading Units) | 20 | Total (Loading Units) | 20 | Total (Loading Units) | 29 |
| PSFR (L/s) | 0.38 | PSFR (L/s) | 0.38 | PSFR (L/s) | 0.42 |

It is proposed that only two (2) 125mm sewer infrastructure connections on both Leader Street and Leah Street will be required as part of this development. All other existing sewer connections to the site will likely be abandoned.

## 3.1. Proposed Natural Gas Infrastructure

The existing 80mm mains within Leah Street and Leader Street have sufficient capacity for future development. Based on a high density development it is expected that the maximum gas demand will be in the order of 12,000MJ (no diversity allowed for) well below the current requirements of the bakery.

As with all infrastructure entering the site locations of new meters and entry points will be coordinated during detailed design and coordinated with APA.

## 3.2. SA Water infrastructure.

All SA Water infrastructure within the surrounding streets is adequate for the future development. Additionally, based on the Le Cornu development it is likely that the existing street infrastructure will be upgraded to accommodate the future residential development. SA Water have indicated that detailed assessment of network will be conducted upon completion of the proposed future design.

# 4. Fire Protection Services

## 4.1. Existing Fire Protection Infrastructure

The current building is not supplied with any dedicated water feed to serve as a dedicated fire protection system. As such it is expected that all water that would be utilised to fight a potential fire in the existing building would be taken from the existing street plugs located on Leader and Leah Street.

## 4.2. Proposed Fire Protection Services

Based on potential future high density development of the site the following fire protection items can be accommodated by the existing SA Water Infrastructure.

The fire protections system of and high desity building effectively can be designed with minimal water supply from the street mains and supplemented by onsite storage tanks, pumps and boosters. Based on the typical high density applications up to 5 storeys the calculations have been undertaken to determine the water supply requirements to adequately fight a fire within a future development Flow rate required would be approximately 32L/s @ 200kPa. As such it will likely be required that a 150mm fire water mains connection be installed off of Leader Street to supply the proposed fire systems.

## 4.3. SA Water Infrastructure

Currently within Leader Street side there is a 250mm Ductile Iron Lined Pipe that would be utilised as water supply in the event of a fire. At this stage no flow test or network analysis has been conducted as the results of said tests only valid for 12 months. However based on the flow and pressure requirements within the building it is likely that both tanks and pumps will be required to be installed as part of the construction. Additionally future development of the Le Cornu site will likely have significant infrastructure impacts on the area in general and as such assessment of the system would be required during detailed design. It must be noted that all the existing infrastructure in Leader street is compliant with SA Water requirements for a multi storey residential building.

## 4.4. South Australian Metropolitan Fire Service (SAMFS)

The SAMFS have indicated that as the project is only very conceptual that no formal approval can be granted. Each new development is assessed on its merits and endorsed when adequate architecture and fire protections systems have been designed.

## 4.5. Comment

Based on the requirement for the future site and current inground SA Water infrastructure the proposed fire safety solution will be likely be acceptable upon review of detailed documentation by the SAMFS.

# 5. Appendix A – Maximum Demand Calculation

**ELECTRICAL DEMAND CALCULATOR**
**To SAPN TS100 A.3 and AS/NZS 3000**

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CLIENT: | Harmony | | | | calc by: | AK | | date: | 28 Feb 2022 | | | | |
| PROJECT: | | | | | amended by: | OC | | date: | 21 Sep 2023 | | | | |
| JOB No: | | | | | check by: | | | date: | | | | | |
| | | | | | | | | assumed PF | 0.90 | L&P | | | |
| | | | | | | | | | 0.80 | HVAC | | | |
| | | subtotal - existing: | | | | 0 | kW | 0 | kVA | 0 | A | | |
| | | subtotal - proposed | | | | 930 | kW | 1166 | kVA | 1690 | A | | |
| | | **TOTAL:** | | | | **930** | **kW** | **1166** | **kVA** | **1690** | **A** | | |
| **Proposed Loads** | | | | | | | | | | | | | |
| Description | Type of Occupancy | | No, | | ADMD | | | | | | | | |
| Proposed high density Occupancy | Residential | L & P | 91 | | 4 | kVA | 327.6 | kW | 364.0 | kVA | 528 | A | |
| | | EV | 18 | | 7.36 | | 0.0 | kW | 132.5 | kVA | 192 | A | |
| | | Special | | | Describe load | | | kW | 0.0 | kVA | 0 | A | |
| Carpark | EV | EV | 91 | | 7.36 | kVA | 602.8 | kW | 669.8 | kVA | 971 | A | |
| | | | | | | | 0.0 | kW | 0.0 | kVA | 0 | A | |
| | | Special | | | Describe load | | | kW | 0.0 | kVA | 0 | A | |