

**BUILDING SERVICES  
INFRASTRUCTURE REPORT**  
For  
**Proposed Service Centre & Fast-Food  
Outlets**  
**Oxley & Kamilaroi Highways**  
**Gunnedah NSW 2380**

Project No:  
MN13838

Architect:  
Hill Lockart Architects

## Report Details

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## **EXECUTIVE SUMMARY**

This Infrastructure report for proposed new hydraulic, fire and electrical services has been prepared by Marline Building Services Engineers on behalf of Hill Lockart for the proposed service centre and fast-food building at 127-141 Lochrey Road, Gunnedah.

This report outlines the existing infrastructure, detailing information on the existing capacity and any augmentation to the services required for the proposed development. The report also details records of consultation with relevant local authorities and agencies. The details within this report are preliminary and based on currently available information and correspondence undertaken at the time of writing.

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## **1. INTRODUCTION**

### **1.1. GENERAL**

Marline Consulting Engineers have been engaged as the electrical hydraulic and fire consultants to provide professional advice on the proposed works associated with the proposed new building at 127-141 Lochrey Road, Gunnedah as part of initial Development Application (DA) Consent.

The intent of this report is to detail the investigations and findings associated with the proposed building services (electrical and hydraulic) currently servicing the site and advise what upgrade works are required (if any) for these services for future works planned.

The investigations for this Infrastructure Report primarily focuses on the following objectives:

- Identify potential opportunities and site constraints,
- Identify the location, size and capacity of all existing services within the vicinity of the proposed site,
- Identify utility confirmation for the subject site and,
- Identify options to service the site to support the proposed development.

It is important to note that the development will be subject to several regulatory authority approvals including but not limited to; Gunnedah Shire Council, Fire & Rescue NSW, electricity supply authority and NBN, that are likely to specify specific requirements for the development impacting on the spatial requirements during detail design stage.

This document provides an assessment of the available infrastructure to service the proposed development with respect to disciplines previously nominated.

## 1.2. SITE LOCATION

The proposed development is located at 127-141 Lochrey Road.



## 1.3. PROPOSED DEVELOPMENT

The current site is greenfield site located 2.4kms south east from Gunnedah town centre.

Construction will include a service station, diner and two fast food outlets associated carparking with additional parking for trucks, vans and rv's.

## 2. AUTHORITIES

### 2.1. GENERAL

The Hydraulic and Electrical Services installations covered by this infrastructure report shall comply with the regulations and by-laws of all Federal, State, and Local Authorities holding jurisdiction over the works:

- The National Construction Code (NCC BCA 2022)
- Standards Australia
- Gunnedah Shire Council
- FRNSW
- NSW Department of Fair Trading
- NBN
- Electricity supply authority – Essential Energy

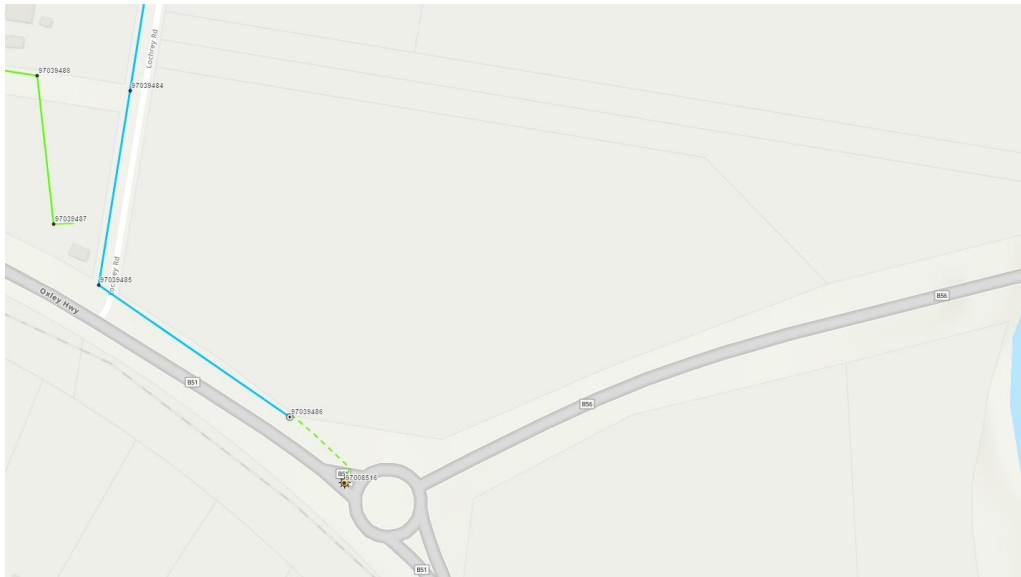
### 2.2. EXISTING AUTHORITY INFRASTRUCTURE

All works will be subject to the appropriate documentation and requirements of council. Based on initial site investigations and recent assessment of the preliminary documentation we anticipate that the following requirements will be applicable:

#### 2.2.1. ELECTRICAL POWER SUPPLY AND SUBSTATION

The electrical supply to the development falls within the Essential Energy area. There is an existing single-phase 22kV high-voltage overhead service reticulated alongside Oxley Highway from Lochrey Road. This is terminated at a single phase 10kVA pole-mounted substation (ID#: 97039486), which appears to solely supply street lighting to the Oxley/Kamilaroi intersection. These services will not be suitable for the supply of the proposed development, and significant supply authority network modification and upgrade works will be required to service the development.

There is no existing supply to the site.



The maximum demand of the development will be heavily dependent on the following factors:

- Retail/food tenancy and lease agreements
- Fuel station lessor and lease agreement

Each of the above can vary significantly between different companies and arrangements.

However, it is expected that the maximum demand for the facility will exceed 400 A/phase and will require the installation of a dedicated substation. Essential Energy may allow the installation of a pole-mounted 500 kVA substation which can provide a maximum site supply of 630 A/phase. A connected load over this amount will require the installation of a kiosk substation (must be located above 1:100-year flood level).

Marline will submit an application to Essential Energy upon finalisation of the maximum demand during the detailed design phase. This process will inform the exact ASP3 design requirements and the subsequent ASP1 network modification/upgrade scope.

### **2.2.2. COMMUNICATIONS**

The development site is not currently connected to any Telstra or NBN Co services. There do not appear to be any wired network services in the vicinity of the development.

It is recommended that the site is supplied by a NBN Co Fixed Wireless or NBN Co SkyMuster service.



### 2.2.3. SEWER

There is no existing authority sewer infrastructure in the vicinity of the proposed development. The proposed development will require an on-site storage system to be connected to the 225mm authority sewer located at the intersection of Carroll and Conadilly St via a 100mm pumped rising main. The on-site system will consist of a holding tank, emergency storage tank, wet well and pumpstation designed in accordance with Council requirements and Water Services Association of Australia (WSAA). The detention time will be minimised to 2hrs with 24hr emergency storage tank sized to industry standards with the consideration of assumed daily population for the proposed development. The rising main will be located in the road reserve clear of private property to council requirements. Further liaison with other services/authorities will be required to ensure services are located in allocated zone.



**Gunnedah Shire Council Sewer & Water Mains Map (127-141 Lochrey Road, Gunnedah)**

After consultation with council, it has been determined that connection to existing councils' infrastructure will be made to the 225mm sewer main located within the area indicated below at the intersection of Carroll st and Conadilly st.



**Image from Six Maps** (intersection of Carroll St and Conadilly St, Gunnedah)

Further investigation will be required during detail design stage to identify the pipe size and invert levels for the new connection. Council have made the assumption that a 100mm pumped connection will be sufficient.

It is recommended that further invasive study is carried out to confirm the invert levels of the proposed connection point and confirm connection.

Note: The final daily total sewer discharge of the site and inground pipe calculation will be identified during detail design phase.

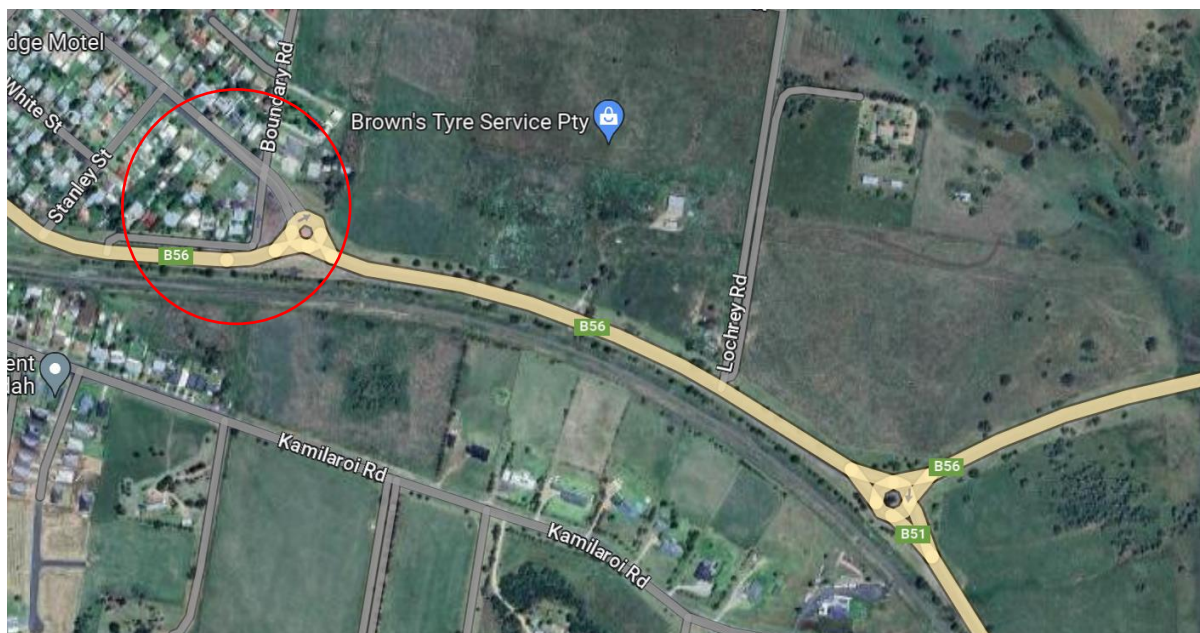
## 2.2.4. WATER

The site does not currently have access an authority water main.



**Gunnedah Shire Council Sewer & Water Mains Map (127-141 Lochrey Road, Gunnedah)**

After consultation with council, it has been determined that connection to existing councils' infrastructure will be made within the area indicated below. Awaiting information from council to determine exact location of connection.



Further investigation will be required during detail design stage to identify the pipe size for the new connection and correspondence to council will determine the existing potable water connection to the development.

Final potable water supply and fire services will be sized in accordance AS/NZ3500.1.2018 and AS/NZS 2419. 2005 simultaneous demands.

#### **2.2.5. GAS**

Natural gas is not available to the proposed development site.



### **3. BUILDING SERVICES**

The building services associated with the proposed development at the site that form part of the expected design development are hydraulic, fire, and electrical services.

Overviews of the associated systems are generally described in following parts.

#### **3.1. HYDRAULIC AND FIRE SERVICES**

##### **3.1.1. Sanitary Plumbing & Drainage**

The sanitary plumbing and drainage will be designed and documented to AS 3500.2 and Gunnedah Shire Council requirements.

Exact sewer requirements will be determined during the design phase.

##### **3.1.2. Domestic Cold Water**

The domestic cold-water service will be designed and documented in accordance with AS3500.1 and Gunnedah Shire Council requirements.

Exact water requirements will be determined during the design phase.

##### **3.1.3. Domestic Hot Water**

Hot water requirements will be determined during the design phase.

##### **3.1.4. Roof Water**

Roof water requirements will be determined during the design phase.

##### **3.1.5. Trade Waste**

The proposed development will require trade waste as part of the proposed works.

Exact trade waste requirements will be determined during the design phase.

##### **3.1.6. Fire Hydrant System**

As the proposed building floor areas exceeds 500m<sup>2</sup>, fire hydrant protection will be required designed to the requirements of AS2419.1-2021 and the NCC 2022.

An application for a pressure and flow statement has been requested from Gunnedah Shire Council and we are awaiting the results of this application to confirm the requirements of the sprinkler and hydrant systems.

The fire hydrant system will comprise of a fire hydrant booster assembly, on-site fire hydrant storage tanks and a fire hydrant pump. Details of the system will be outlined during the detailed design stage.

##### **3.1.7. Fire Hose Reels**

Fire hose reels are required in NCC 2022 for Class 6 buildings and fire hose reel protection will be required designed to the requirements of AS2441-2005.

##### **3.1.8. Fire Sprinklers**

As the proposed building's floor area is less than 3500m<sup>2</sup> fire sprinklers are not required in NCC 2022 for Class 6 buildings. However, if the building is later determined to be over 3500m<sup>2</sup> floor area or 21,000m<sup>3</sup> in volume it will require a fire sprinkler system in accordance with AS2118.1-2017 and/or to the original Australian Standard applicable at the time of the original build.

Sprinklers may be deemed to be required as part of a Fire Engineered Solution however this will be determined during detailed design.

### **3.1.9. Gas**

There is no natural gas available to the site or a proposal for gas to be used onsite as part of the proposed redevelopment.

## **3.2. ELECTRICAL SERVICES**

### **3.2.1. Main Switchboard & Distribution Boards**

A new main switchboard (MSB) will be provided in accordance with AS/NZS 3000 and AS/NZS 61439 to service the proposed development. The MSB will contain the safety services and non-essential sections to distribute supplies across the entire site. The existing MSB will be utilised as the main distribution board for the areas to be refurbished.

Supply authority metering will be provided within the MSB to service individual tenancies and the house services as required. Private metering will be provided to meet NCC requirements for metering of individual services where required.

Distribution boards will be provided throughout the proposed facility to service each area as required. A minimum of one (1) distribution board will be provided within each individual tenancy.

Note the above is for guidance and subject to the final proposed building design and services provided.

### **3.2.2. Power Systems**

General purpose and special purpose power will be provided throughout the project. Quantities of outlets and locations will be co-ordinated with the Architect, tenants, and other consultants associated with the project.

All power outlets located external to the building are to be weatherproof. All power systems and distribution will be designed in accordance with AS/NZS 3000.

### **3.2.3. Lighting**

Internal and external lighting will be designed in conjunction with the architect and design team in compliance with NCC and AS/NZS 1680 series requirements. LED lighting will be provided throughout the development.

All apron and external lighting will be provided in accordance with AS/NZS 1158.3.1 and AS 4282 requirements.

### **3.2.4. Communications Systems**

The horizontal cabling will comprise an integrated voice and data cabling system utilising Category 6A cabling and outlets, connected to a patch panel housed in a rack cabinet in each building/level and connected via fibre optic backbone cabling.

Locations of data cabinets and associated rooms will be coordinated with the client and the architect.

Equipment rooms, cable access ways from the equipment room to communication outlets via communication cable containment provisions, such as cable trays and/or conduits will be provided for the new development area.

### **3.2.5. Fire Detection & Emergency Warning and Intercommunication Services**

The entire site is to be provided with a digital fire detection and building occupant warning system (BOWS) in accordance with NCC 2022, FER (where applicable), and AS 1670.1 requirements.

### 3.2.6. Security and CCTV System

The entire site is to be provided with a complete and operational digital security system, including IP CCTV to suit client and individual tenant requirements.

