IGS INTEGRATED GROUP SERVICES

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# ENGINEERING SERVICES INSTRSTRUCTURE REPORT

20-24 Lockyer Street, Goulburn
Date: 20 October 2023
Rev 1

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## CONTENTS

# 1. INTRODUCTION

## 1.1 General

Lockyer Street Trust has commissioned IGS to carry out a desktop engineering services due diligence report of a site located at 20-24 Lockyer Street, Goulburn.

The proposed development is for a industrial development consisting of:

- Development of multiple industrial warehouses;

This report presents the findings of a desktop study review with respect to:

- Utility infrastructure (electrical, mains water, natural gas, sewer, telecommunications) assessment.

This report has been prepared solely for Novo Advisory. No warranty is provided to third parties who rely on this report for any other purpose.

## 1.2 The Site

The site is legally described as Lot 2 DP 1238214. Refer to Figure 1.


**Figure 1 – Site Location (Source: Sixmaps)**

## 1.3 Mandatory BCA Energy Efficiency Requirements

Mandatory BCA Energy Efficiency requirements are as follows:

- Part J1 – Energy Efficiency Performance Requirements;
- Part J2 – Energy Efficiency;
- Part J3 – N/A
- Part J4 – Building fabric;
- Part J5 – Building sealing
- Part J6 – Air-conditioning and ventilation systems;
- Part J7 – Artificial lighting and power;
- Part J8 – Heated water supply and swimming pool and spa pool plant;
- Part J9 – Energy monitoring and on-site distributed energy resources;

# 2. UTILITY ENGINEERING SERVICES

## 2.1 Utilities Services Review / Analysis

A utilities review has been carried out in consultation with the relevant local authorities to identify the existing utilities at the site.

Dial Before You Dig (DBYD) requests were submitted on the 12 July 2023 to investigate the presence of existing utilities such as natural gas, water, stormwater, sewer and telecommunications.

The following utilities with interests/assets in the vicinity of the site were notified in this process:

| Seq. No. | Authority Name | Phone | Status |
|---|---|---|---|
| 227721183 | Essential Energy | 13 23 91 | NOTIFIED |
| 227721184 | Jemena Gas Country | 1300 880 906 | NOTIFIED |
| 227721182 | NBN Co NswAct | 1800 687 626 | NOTIFIED |
| 227721181 | Optus and or Uecomm Nsw | 1800 505 777 | NOTIFIED |
| 227721185 | Telstra NSW South | 1800 653 935 | NOTIFIED |

END OF UTILITIES LIST

## 2.2 Capacity Calculation Assumptions

The following assumptions have been made in carrying out this assessment:

- GFA 107,925m$^2$;
- 10 Warehouse/Industrial Units;
- Cold Water ~10,000l/day;
- Sanitary / Sewer Discharge ~10,000 l/day;
- Gas ~5,000 mj/hr diversified load;
- Fire Hydrant System 20 l/sec and Sprinkler System 18 l/sec; and
- Hot Water 5,000 Litres over peak hour.

# 3. ELECTRICAL

## 3.1 Electrical Maximum Demand

Based on our preliminary electrical maximum demand calculations, the new development will require 3974.8 Amps/Phase.

This equates to approximately 2742.6kVA.

The detailed maximum demand calculation is presented below:

**Electrical Maximum Demand Calculation**

20-24 Lockyer St, Goulburn

**Job No:** EN - N19_59

| | Area (m2) | Quantities | VA/m2 | VA | I (A) | Subdivided I (A) |
|---|---|---|---|---|---|---|
| Warehouse (Lighting & Power) | 46373 | | 60 | 2782380 | 3974.8 | |
| Sub-Total | | | | | | 3974.8 |
| **Total (without ADMD)** | | | | | | **3974.8** |
| | | | | | | |
| **Total kVA** | | | | | **kVA** | **2742.6** |

The redevelopment of the site will most likely necessitate three (3) new onsite substations.

Based on maximum demand calculations, following substation arrangements need to be considered:
**3 x 1000kVA kiosk substations;**

## 3.2 Existing Services

Based on infrastructure plans provided by Essential Energy, existing HV infrastructure is located on the northern side of the site within Lockyer Road which will be most likely be the point of connection for the new on-site substations

The capacity of this feeder will be determined once the application for connection has been assessed by Essential Energy.

This is shown in Figure 2.

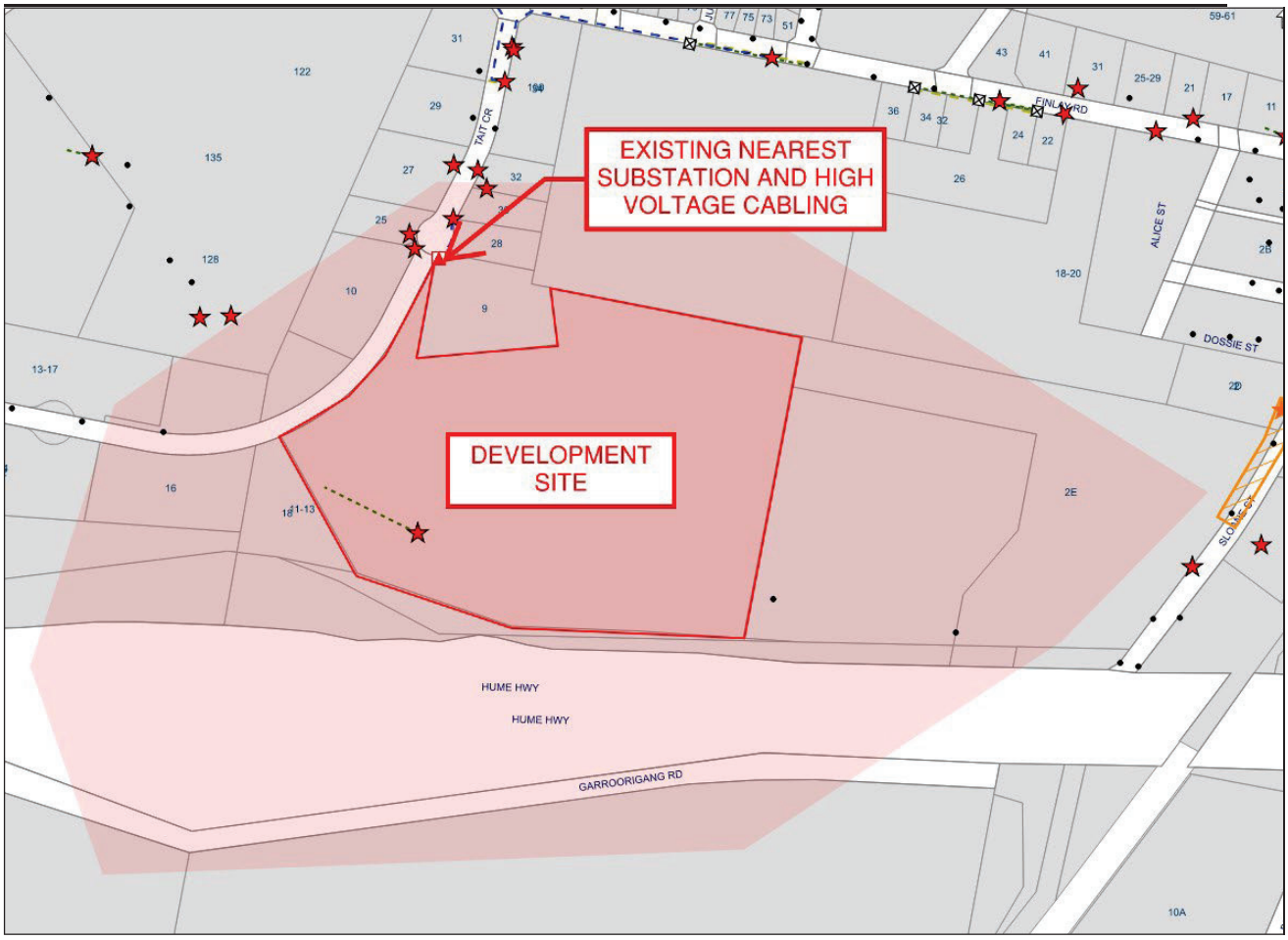
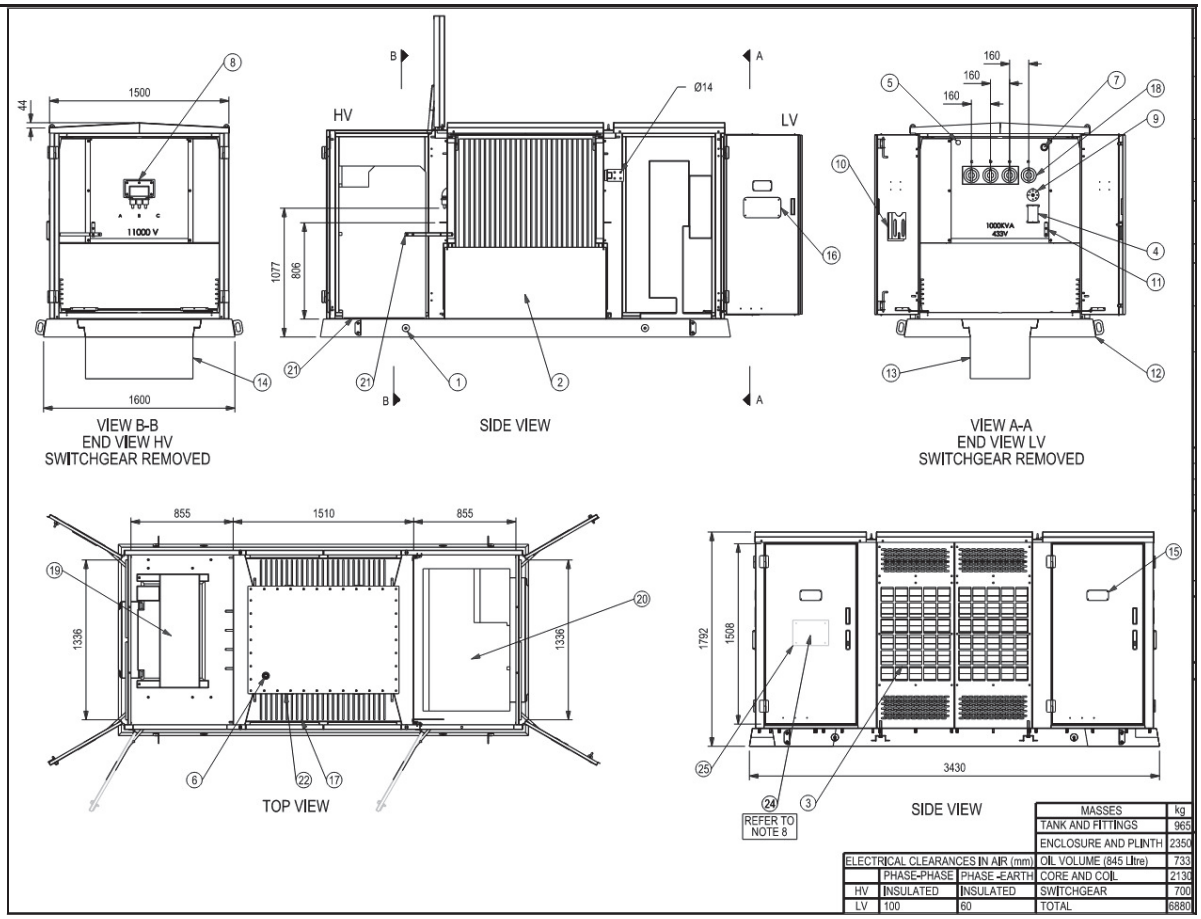



**Figure 2 – HV in the vicinity of the Site (Source: Ausgrid)**

### 3.3 New Substations for the Development

Below are the spatial options for kiosk substations:




Kiosk substations have the following special requirements:

- 7000mm x 4200mm easement required per substation in favour of Essential Energy;
- The substation easement is most preferred to be flushed against the property boundary;
- No overhead structures; electrical/civil/architectural are allowed above the substation Easement;
- Easement must be located as such that the substation cubicle is 3m from the neighbouring Boundary;
- 24/7 access to the substation must be provided with parking at the frontage of the substation;
- Any building structure within 3m of the substation cubicle must be 2hr fire rated and 2kPa blast resistant;
- Minimum 6m clearance must be maintained from the substation cubicle to any opening/ventilation duct of any surrounding building;
- No fixed glass/windows within 3m of substation cubicle;
- No utilities, other services or any foreign structures are allowed to encroach the substation easement (no water tank or telco pits within 5m of substation);
- The easement must comply with 1:100 year floor level.

### 3.4 Summary & Conclusions

The following items will need to be further considered with respect to the electrical services associated with the site:

- Connection to existing HV feeders;

# 4. NATURAL GAS

## 4.1 Gas Maximum Demand

The gas maximum demand has been estimated at:

- 5,000 mj/hr diversified load.

## 4.2 Existing Services

There are no major existing gas services within the site that will need to be decommissioned and/or diverted.

Refer to details below in Figure 4.

## 4.3 Jemena Infrastructure in the Vicinity of the Site

The site has good gas main coverage. There is an existing 50mm, 210kPa gas mains in Lockyer Street. These gas mains in the vicinity of the site will be suitable and adequate to service the site.

This is shown below in Figure 4.

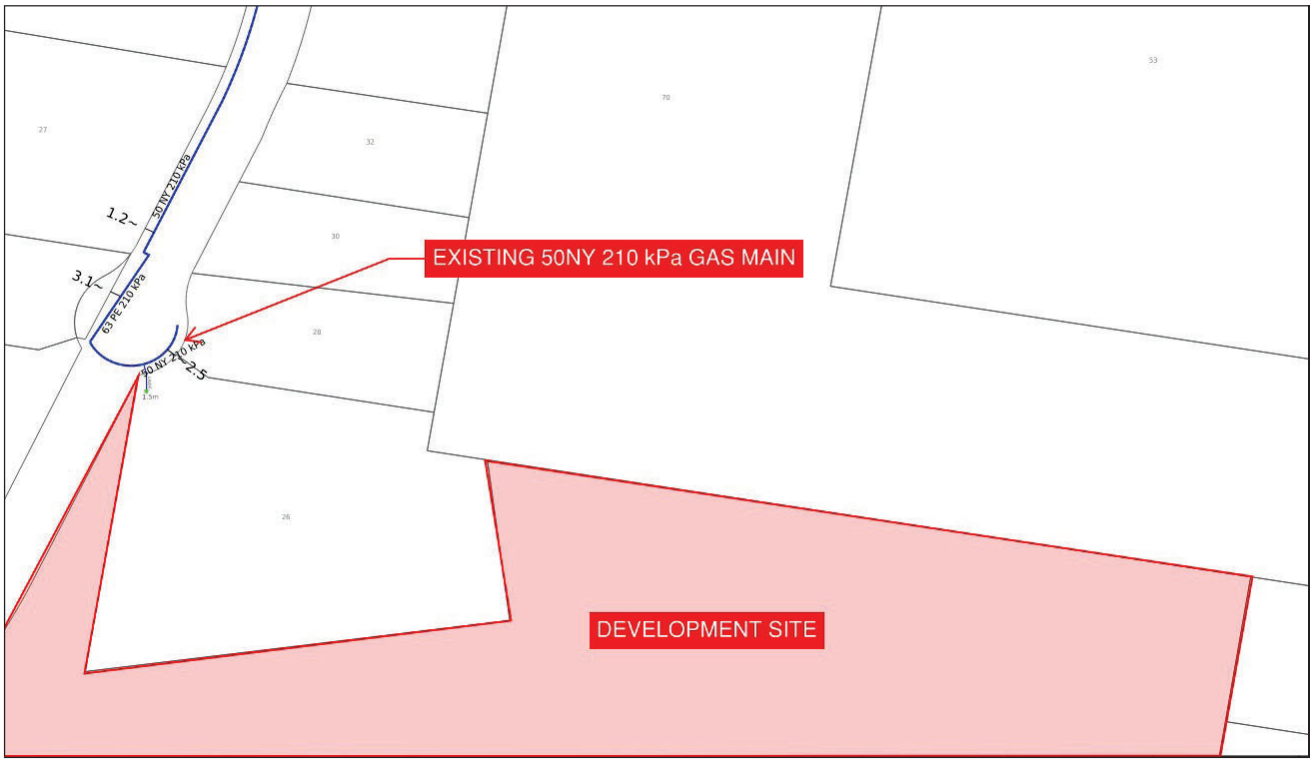



**Figure 4 – Jemena Natural Gas Infrastructure (Source: Jemema)**

## 4.4 Summary and Conclusions

Jemena have extensive infrastructure in the vicinity of the site and can easily cater for the proposed new development.

# 5. TELECOMMUNICATIONS

## 5.1 Telecommunications Maximum Demand

Based on current estimate of industrial units proposed for the development broadband fibre optic cabling will be required to the site.

## 5.2 Existing Services

There are no major existing telecommunications services within the site that will need to be decommissioned and/or diverted. They are solely servicing the site and can be readily decommissioned when the site is vacated.

## 5.3 Telecommunications Infrastructure in the Vicinity of the Site

Response from the respective Telco's shows 100mm pit and pipe network in the vicinity of the site.

High bandwidth services are available off Lockyer Street refer to Figure 5.

The telecommunications services identified in the vicinity of the site are expected to have the carrying capacity to suit the needs of the proposed development.

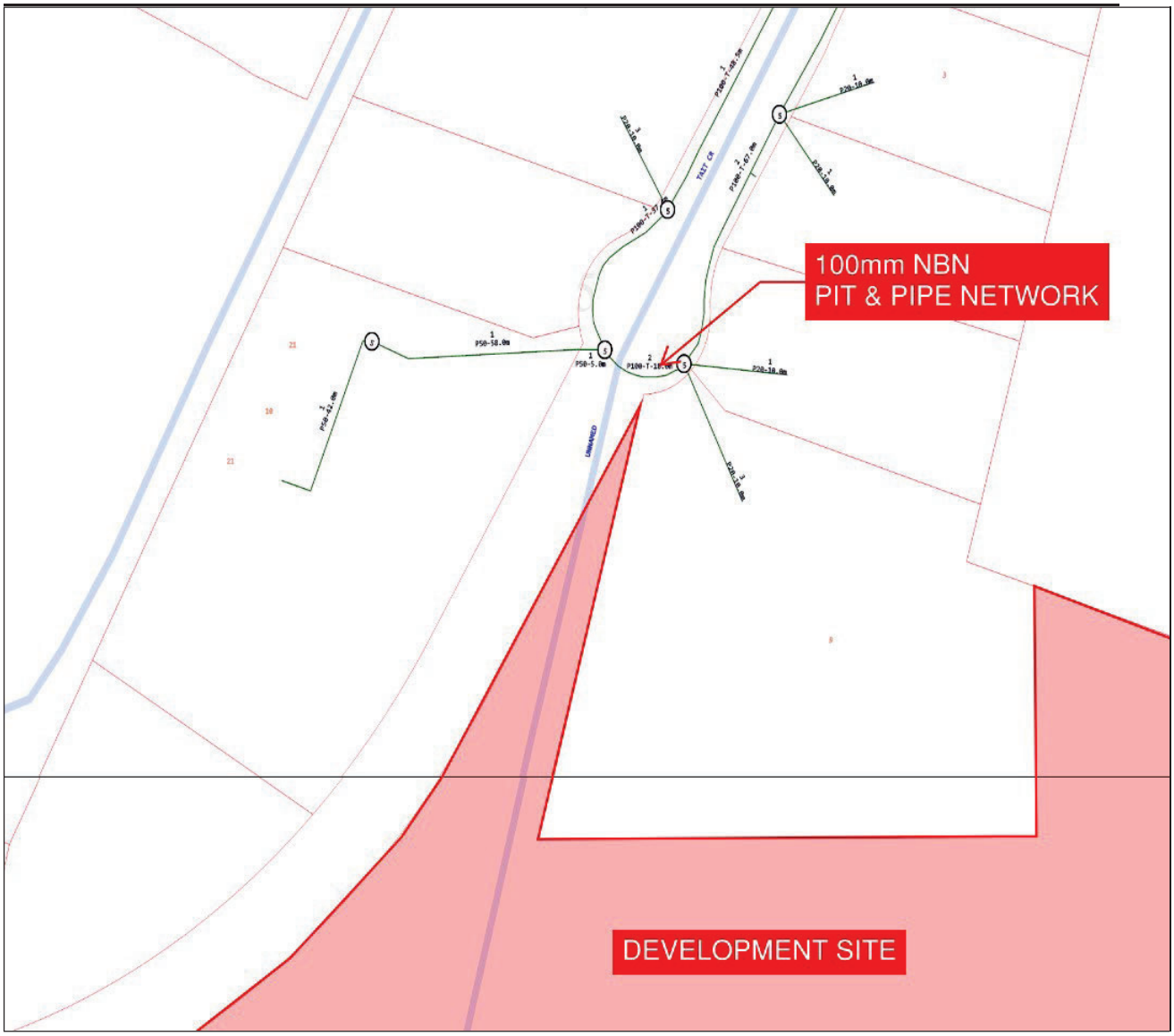



**Figure 5 – NBN Infrastructure in the Vicinity of the Site (Source: NBN)**

An application to NBN will be required to service the residential development.

### 5.4 Summary and Conclusions

The major Telco's / NBN all have infrastructure in the vicinity of the site and can easily cater for the proposed new development.

An extension to the NBN network via a pit and pipe system will be required.

# 6. MAINS WATER & SEWER

## 6.1 Water Maximum Demand

Water maximum demand has been estimated as follows:

- Cold Water 10,000l/day;
- Fire Hydrant System 20 l/sec; Sprinkler System 18 l/sec and
- Hot Water 1,000Litres over peak hour.

## 6.2 Existing Services

There are no major water services within the site that will need to be decommissioned and/or diverted.

Any minor water services within the site servicing the respective buildings can be readily decommissioned during demolition.

## 6.3 Mains Water Infrastructure in the Vicinity of the Site

Goulburn Mulwaree Council is the responsible authority for the provision of potable water to the site. There are water mains located in Lockyer Street and Tait Crescent (to the northern frontage and to the west).

## 6.4 Summary and Conclusions

The existing water mains in Lockyer Street and Tait Crescent will likely be the nominated supply for the proposed new development - subject to formal application to Goulburn Mulwaree Council. The water main capacity is subject to Goulburn Mulwaree Council pressure and flow report however appears to have the necessary capacity to service the future development.

# 7. SEWER

## 7.1 Sewer Maximum Demand

Sewer maximum demand has been estimated as follows:

- Sanitary / Sewer Discharge 9,500 l/day.

## 7.2 Existing Services

There are no major sewer services within the site that will need to be decommissioned and/or diverted. Any minor water services within the site servicing the respective buildings can be readily decommissioned during demolition.

## 7.3 Sewer Infrastructure in the Vicinity of the Site

Goulburn Mulwaree Council is the responsible authority for the provision of sewer services to the site. The existing sewer mains located in Lockyer Street and Tait Crescent are highly likely to be nominated as point of connection. This sewer is estimated to have sufficient capacity to cater for the proposed development.

## 7.4 Summary & Conclusions

In summary, the sewer mains in the vicinity of the site are likely to have sufficient capacity to serve the new development. The nominated point of connection to Goulburn Mulwaree Council sewer network will be confirmed via formal application for connection

## 8. STORMWATER

Please refer to Civil Engineering Works (Including Stormwater Management) Report No.R02714 Revision A completed by C&M Consulting Engineers.

## 9. HEADWORKS COST ESTIMATES

| SERVICE | ESTIMATED COSTS | COMMENTS |
|---|---|---|
| Electrical | Substations - **$650,000** | 3 x 1000kVA Kiosk Substations |
| Water | Water Main Tap in - **$100,000** | - |
| Sewer | New Sewer Connections **- $150,000** | - |
| Gas | New Gas Connections **- $30,000** | Gas mains in the vicinity have good capacity for the site |
| NBN | New NBN Connections – **$150,000** | - |

## 10. CONCLUSION

In conclusion, it is evident that the implementation of this development will not yield any profound or drastic effects on the surrounding authority services. This conclusion is based on a comprehensive examination of the potential implications, taking into account factors such as the scope and scale of the development, the existing infrastructure in the surrounding area, and the capacity of the authority services to adapt and accommodate any change.