

QUEEN MARY BUILDING

BUILDING SERVICES INFRASTRUCTURE REPORT

CLIENT



HEALTH INFRASTRUCTURE
NSW HEALTH

PROJECT MANAGER



Project: Queen Mary
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SECTION 1 | INTRODUCTION

1.1 PRE-AMBLE

This report has been prepared by Medland Metropolis at the request of the TSA Management and Health Infrastructure (NSW Health) to provide details of the impact of the redevelopment of the site on the following services infrastructure to the site:

- Power;
- Communications;
- Gas;
- Potable water;
- Sewerage; and
- Fire Services.

The existing 13 storey building (26,220m² of floor area) known as building 42 (Queen Mary Building) is situated on a parcel of land within the Royal Prince Alfred (RPA) precinct.

Currently the building contains 769 single bedrooms, however the proposal is to modify some of the existing layouts to achieve 755 single/double bedrooms which would provide a total of 765 beds to be used for student accommodation.

This infrastructure report is accompanying a site compatibility certificate application to the Department of Planning as a first stage of approval. A DA submission to Council would follow issue of a certificate.



1.2 OBJECTIVE

The objective of this report is to:

- Identify the incoming building services infrastructure; and
- Provide advice on the impact of the redevelopment of the site on this infrastructure.

SECTION 2 | ELECTRICAL SERVICES

2.1 POWER SERVICE

The Queen Mary Building is currently served by an existing 800A/phase floor mounted substation kiosk (S3224) located adjacent to the building at the western end of the site with underground power cables as shown on Appendix A and B. Energy Australia is the service authority responsible for electricity supply to the area and has confirmed the above condition. In 2005, when the Queen Mary building was occupied, the transformer was supplying approximately 600A. However in year 2000, when the Queen Mary building was fully occupied, the substation was supplying approximately 100A. This indicates that there will be about 200A remaining to accommodate any upgrade. Hence the current electrical infrastructure (substation) is inadequate in respect to its capacity and configuration for the proposed future refurbishment on the site.



Existing Substation

2.2 EXISTING MSB

Based on our maximum demand estimation, the current MSB is inadequate to supply the new load (1800A), it is to be replaced with a new MSB to accommodate the new facility.



2.3 IMPACT OF REFURBISHMENT WORKS

The estimated maximum demand for the new refurbishment is approximately 1800A/phase which is well above the capacity of the existing infrastructure, with the result that there will be alterations or upgrades to the existing transformer or the incoming high voltage supply. The first step in determining a required scope of works and solution is for an Application to be submitted to Energy Australia. Preliminary discussion has been held with Energy Australia, more details will be issued at DA stage. EA has suggested that the only solution for the upgrade is by adding additional substations, but depending on the type of substation, it may result in more than one additional substation, which means additional space is required to accommodate the substations.

The MSB, authority meters, underground consumer mains and conduits are to be replaced. New trenches will be required to accommodate the new conduits and underground consumer mains.

SECTION 3 | COMMUNICATIONS

3.1 GENERAL

Telstra and Optus are the responsible authority for the provision of telephone facilities to the site. Service information has been provided by Telstra and Optus. The plans indicating existing underground fibre surrounding the building refer to Appendix C figure 1 and 2. Currently, there is existing fibre terminated within the Main Switchboard room. We have been advised by the former site manager that the existing copper and fibre cables have been extended from the main campus distributor in the Queen Elizabeth II Rehabilitation Centre (Refer to Appendix D). Telstra and Optus have also verbally confirmed there is copper network available surrounding the premises. This has not been shown on the network drawings. Written documentation has been requested to confirm the availability of the copper cables. Further consultation will be carried out with the IT manager (RPA) to confirm hospital communication arrangement as part of detailed design at DA.



3.2 IMPACT OF REFURBISHMENT WORKS

Currently there are number of existing communication pits adjacent to the building. It is expected that there should be minimal upgrade to the existing underground trenches to accommodate the new facility. However, this depends on the network route. Investigation will be made to determine existing copper and fibre capacity to the building and further contacts will be made with Telstra to confirm if sufficient capacity is around the building. Possible solutions are bringing new communication services from the hospital main campus distributor or make new connection to the adjacent street network. Connection method will be liaised with hospital IT manager and site manager as part of the detailed design at DA documentation.

SECTION 4 | GAS

4.1 GENERAL

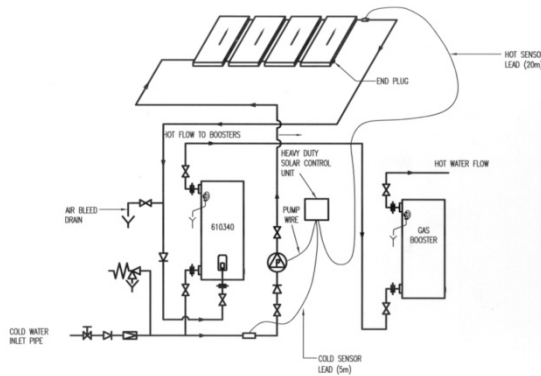
The site is currently serviced by a natural gas supply which extends from a secondary gas main located within Grose Street approximately 30m east of Church Street (Refer to Appendix E). Due to the building not being occupied the Utility has reclaimed the meter. The existing meter assembly location is within a locked enclosure.

Gas currently reticulated used on site for mechanical plant, kitchen areas, hot water plant and general appliances.

4.2 IMPACT OF REFURBISHMENT WORKS

Initial assessment shows that the existing gas supply pipework size will be sufficient for the proposed works, however if a higher load is required a new supply will be able to be extended from the Secondary Main within Grose Street.

In addition to servicing the kitchen, gas could also be used to boost the solar hot water systems that may be installed to all new hot water heaters within the development as part of ESD initiatives.



Gas boosted solar hot water system schematic

SECTION 5 | POTABLE WATER

5.1 GENERAL

The site is current serviced by a 100 mm diameter Sydney Water town water supply located within Grose Lane (Refer to Appendix F).

An existing 80mm water supply enters the building through the level 1 plant room where the potable cold water meter assembly is located. The supply extends to a water storage tank located on the roof via a set of dual water pressure pumps.

The existing water storage tank feeds both the potable water system and the fire hydrant / hose reel service.

5.2 IMPACT OF REFURBISHMENT WORKS

The redevelopment of the site will not increase the water demand of the site as there is not a material increase in amenities proposed.

However the existing tank system will be required to be modified to meet current standards. Three separate tanks will be required. These tanks being for potable cold water, fire hydrant system and fire sprinkler system and will need to be located on the roof.

Preliminary discussions with Sydney Water (Water Infrastructure Authority) has advised that the appears to be no requirement for upgrading water infrastructure for the sites proposed usage. This is a result from providing water storage tanks.

SECTION 6 | **STORMWATER DRAINAGE**

6.1 GENERAL

The existing building consists of a flat concrete roof with a parapet running around the external edge. The roof drains via a series of grated rainwater outlets and is conveyed down through the building by a series of downpipes. These downpipes then join into a number of larger drainage systems where eventually they discharge to the existing kerb and gutter system at approximately every 15m adjacent to the site boundaries.

6.2 IMPACT OF REFURBISHMENT WORKS

In addition to replacing the damaged pipework, some of the existing pipework system could be modified to drain to a series of new storage tanks. This water could then be reused within the development as part of ESD initiatives.

As the site will not increase the overall hard surface area there will be no requirement for on-site detention.

SECTION 7 | SEWER

7.1 EXISTING INFRASTRUCTURE

The site is connected to the Sydney Water sewerage infrastructure that services the site at a connection point located adjacent the northern boundary (Refer to Appendix F). The existing system (house drainage) drains to the north and connects to Sydney Water infrastructure system as shown of their infrastructure drawings which appears to be a Sydney Water service corridor.

7.2 IMPACT OF REFURBISHMENT WORKS

The redevelopment of the site will not result in an increase in sewer discharge due to no increase in amenities or fixtures.

The existing system will require only minor modifications throughout the building. This will be due to minor alterations of existing layouts. As the sewer demand is not materially increased over the previous nurses accommodation use, the current Sydney Water system will accommodate the proposed use.

A new trade waste system will be required including a new grease arrestor for any proposed commercial kitchen areas.

SECTION 8 | FIRE HYDRANT SERVICE

8.1 EXISTING INFRASTRUCTURE

The existing building currently contains an internal fire hydrant system which would appear to meet the standards of the day in which it was initially design for. The current system is fed from a combined fire and potable cold water tank located on the roof and has the booster valve assembly located within the main foyer and riser and valve outlets located within non fire isolated areas. The system as it stands does not meet current day standards and would require a major upgrade for full compliance.

8.2 IMPACT OF REFURBISHMENT WORKS

The fire hydrant service would require a full upgrade which would include the following requirements:

- An independent water storage tank;
- Relocation of the booster assembly;
- Relocation of valve outlets to within fire isolated stairwells; or
- Follow the recommendations of a fire engineering report.

SECTION 9 | FIRE SPRINKLER SERVICE

9.1 EXISTING INFRASTRUCTURE

The existing building is currently not serviced by a fire sprinkler system.

9.2 IMPACT OF REFURBISHMENT WORKS

To meet current standards subjected to a BCA report or Fire Engineer report, the building may require a full fire sprinkler system complying with current standards to be installed. This system may affect the current water supply to the building, however a storage tank will be provided which will cater for the full sprinkler water requirement. The tank will be located on the roof and the system will be pressurised through a dual pump system which will also be located on the roof.

SECTION 10 | FIRE DETECTION SERVICE

10.1 EXISTING INFRASTRUCTURE

The existing building has been provided with a smoke / fire detection system including a Fire Indicator Panel (FIP).

10.2 IMPACT OF REFURBISHMENT WORKS

To meet current standards a new FIP will be required as well as a full upgrade of the detection systems.

APPENDIX A - EXISTING POWER RETICULATION



Nurses
Training
School

WIMMIN
POOL

Endocri



8

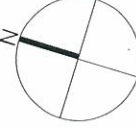


TX

Existing	Incoming

Copper Cable & Fibre

GROSS



NOTE:
The drawings have been produced on the basis of the issued CADD files and have not been checked in relation to scale, surveys or the existing building condition.

Project Title
QUEEN MARY BUILDING REFURBISHMENT
Royal Prince Alfred Hospital

Drawing title
Ground Floor Plan

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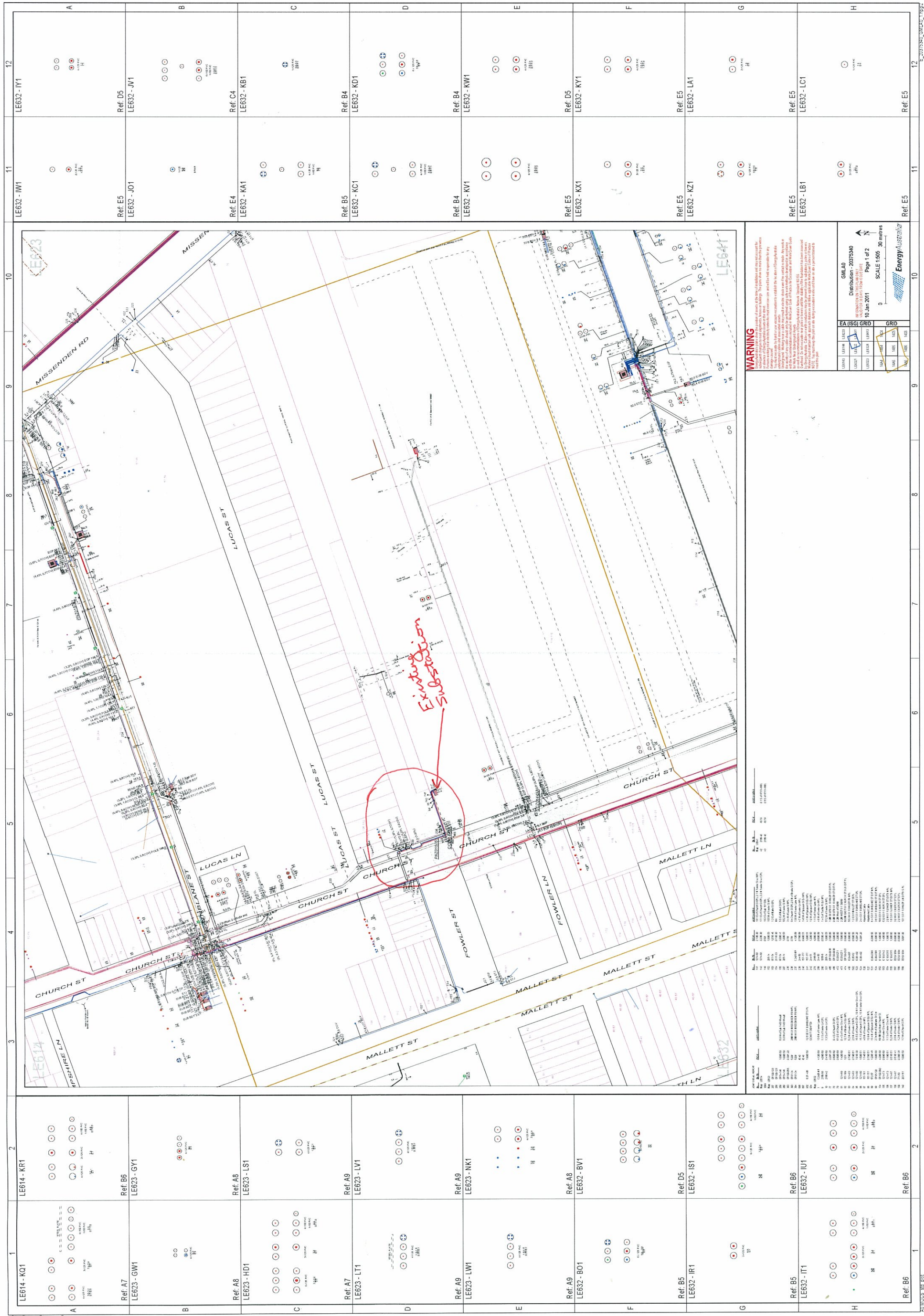
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Acoustic

Acoustic Logix
T 0431 031 297

Amendments		Amendments	
Issue	Description	Date	Issue Description Date

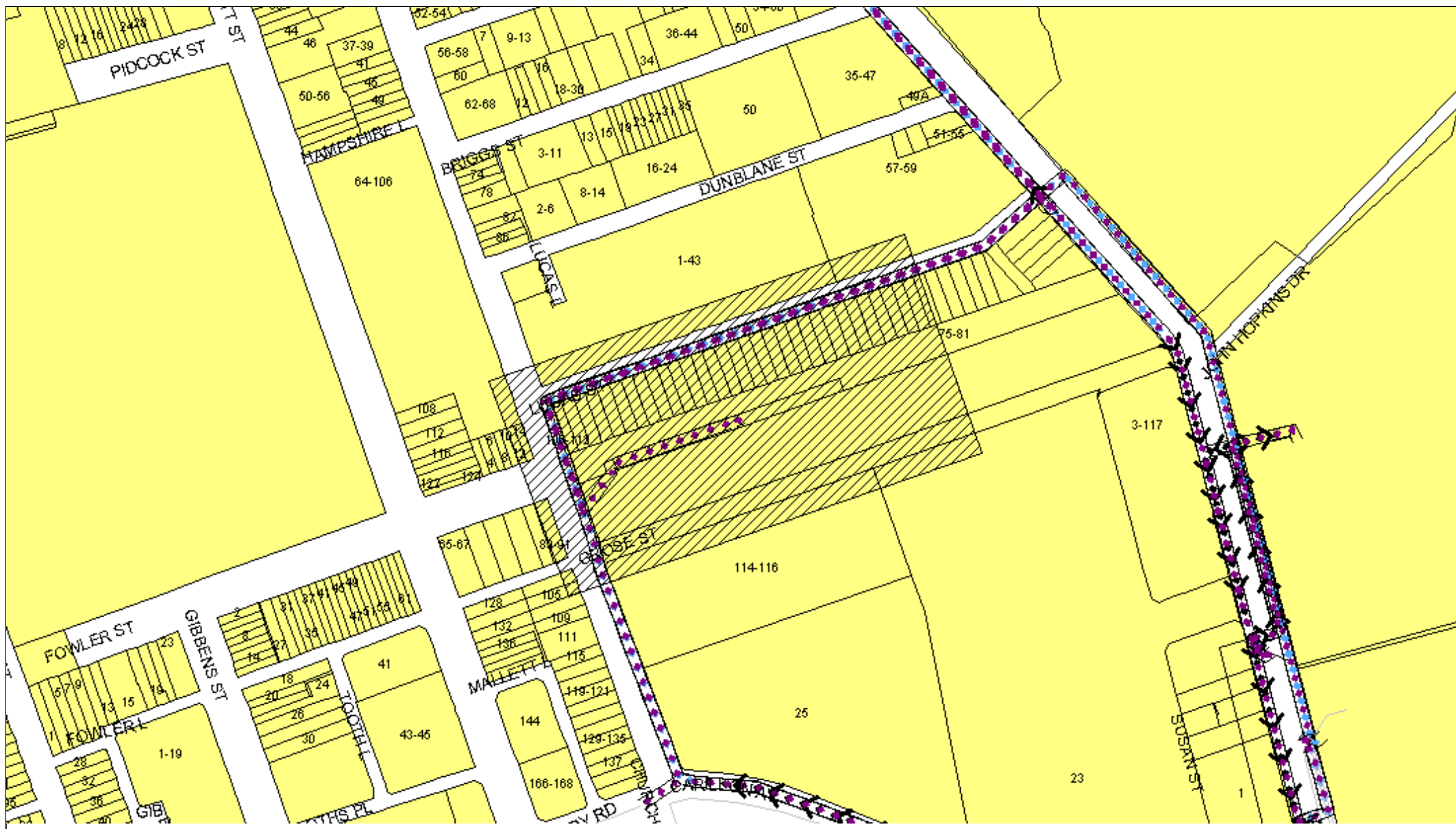
APPENDIX B – ENERGY AUSTRALIA POWER PLANT





APPENDIX C – TELSTRA FIBRE AND OPTUS UNDERGROUND CABLE OVERVIEW





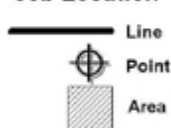
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OPTUS

Optus
Cable Optus Underground OVERVIEW MAP
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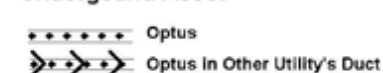
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Location: Grose St And Others



Job Location

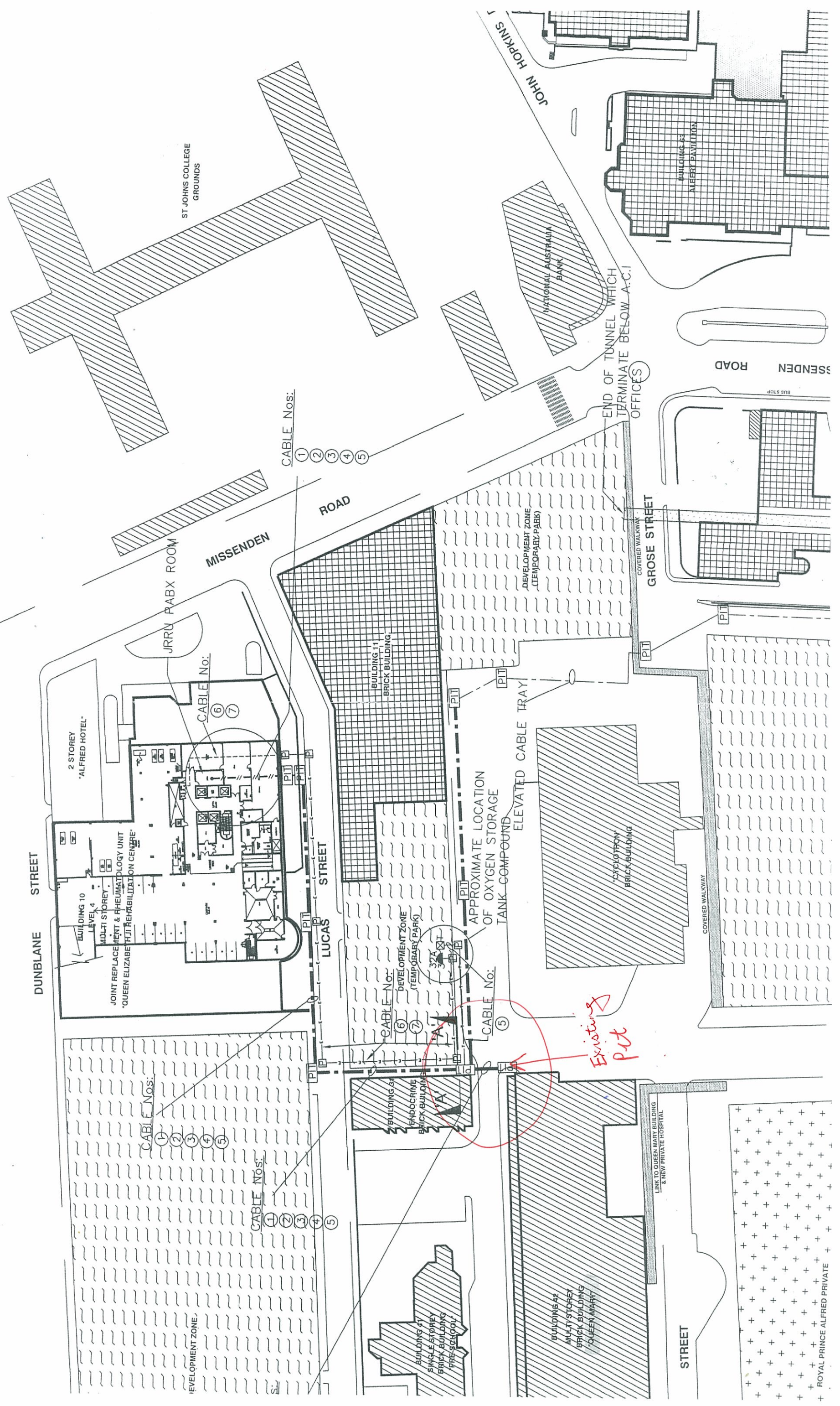


Underground Asset



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APPENDIX D – EXISTING COMMUNICATION RETICULATION



ST JOHNS COLLEGE
GROUNDS

DUNBLANE STREET

MISSENDEN ROAD

LUCAS STREET

GROSE STREET

JOHN HOPKINS STREET

MISSENDEN ROAD

2 STOREY
"ALFRED HOTEL"

JOINT REPLACEMENT & RHEUMATOLOGY UNIT
"QUEEN ELIZABETH II REHABILITATION CENTRE"

CABLE No: 6 7

CABLE Nos: 1 2 3 4 5

BUILDING 11
BRICK BUILDING

CABLE No: 6 7

DEVELOPMENT ZONE
(TEMPORARY PARK)

APPROXIMATE LOCATION
OF OXYGEN STORAGE
TANK COMPOUND

ELEVATED CABLE TRAY

CYCLOTRON
BRICK BUILDING

BUILDING 41
SINGLE STOREY
BRICK BUILDING
PRE-SCHOOL

BUILDING 42
MULTI STOREY
BRICK BUILDING
"QUEEN MARY"

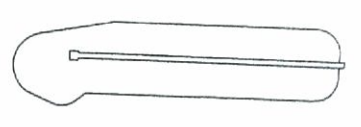
STREET

LINK TO QUEEN MARY BUILDING
& NEW PRIVATE HOSPITAL

ROYAL PRINCE ALFRED PRIVATE

Existing Pit

END OF TUNNEL WHICH
TERMINATE BELOW A.C.I
OFFICES



BUS STOP

APPENDIX E – GAS MAP



D

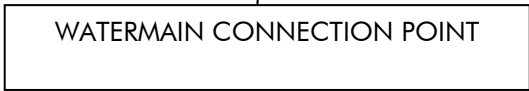
E



APPENDIX F – SYDNEY WATER



SEWER CONNECTION POINT



WATERMAIN CONNECTION POINT