8 - 12 University Avenue Macquarie University

Infrastructure Management Plan

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Contents

Introduction

This report has been prepared to address the requirements of the Environmental Impact Statement in order to meet the Secretary's Environmental Assessment Requirements (SEARs) with regards to the proposed provision of utilities to the development at 8 – 12 University Avenue.

The site is proposed to be connected to the following public utilities providers:

- Power - Ausgrid
- Telecommunications – Various
- Sewer - Sydney Water
- Stormwater - Sydney Water
- Water - Sydney Water
- Gas - Weston Energy / Jemena

The current proposed design includes no proposals to divert public infrastructure.

Power

The Electrical supply to the development will be supplied from the existing 11KV underground network located in the vicinity of the site. The incoming HV connection will originate from the Ausgrid Macquarie Zone substation. Each building will be provided with a dedicated surface chamber substation. Each substation (2 off) will consist of 3 x 1.5MVA transformers each.

Each building will be provided with a dedicated MSB (Main Switchboard) to distribute power for base building and tenant services. The MSB's will be located adjacent to each chamber substation.

Telecommunications

The 8-12 University Avenue building will be connected through the IT Communications Services voice and data network. The main communication rooms will be connected to the University's Wide Area Network (WAN). The Macquarie University Communications Network is mature, with redundant core network widely distributed fibre and voice backbone cabling installed throughout the campus. The Macquarie University IT Communications Services provides a high-speed network with committed services levels for all staff, students and affiliates.

Separate main communications rooms will be provided in the basement of each building. Additional dedicated rooms will be provided to accommodate the incoming carrier services including NBN and commercial fibre services.

Stormwater Drainage

Roof drainage to the OSD and Rainwater Tanks via symphonic drainage system is proposed.

Sanitary Plumbing and Drainage

Sewer drainage will be via a gravity connection to the Sydney Water sewer, similar to the other buildings in the campus.

Laboratory & Trade Wastes Drainage including Dilution Pit

Any commercial kitchens will drain via a grease arrestor to the sewer system. Grease arrestors will typically be in-ground and located away from domestic use areas.

All laboratories drainage will discharge via a dilution pit to the sewer system. The dilution pit will be in-ground and accessible.

Domestic Cold & Hot Water Service

Mains Incoming Supply - supply water connection will be made to the street University water mains.

Cold Water Supply - The water supply will reticulate throughout the building directly feeding the fixtures and fittings and will provide a minimum of 200kPa at the outlets. Pressure reduction valves will be fitted where required to limit pressure to less than 500kPa throughout the system.
The cold water system will incorporate stop valves which will be located in accessible locations to enable wet areas and individual floors to be isolated for maintenance and repair without effecting supply to other areas.

Hot Water Supply – A solar and gas booster central hot water system will be designed for this project. The system will have circulating pumps distribution the hot water throughout the building to provide a rapid supply of hot water to all fixtures.
All laboratories will be provided with a capped hot water supply sized to service the basins only.

Fire Hydrant Service and Fire Hose Reel Service

Fire Hydrants shall be designed to serve all areas of the building to comply with the requirements and regulations of all authorities and codes relevant to the works. The fire hydrant system the building will consist of a hydrant water storage tank, booster assembly, landing valves and diesel & electrical hydrant pumps. The tank will have a minimum capacity of 25m^3.

Fire Hose Reels will be provided throughout all areas of the building, generally within 4 meters of the adjacent of exits. The water supply will be extended below ground from the existing booster valve assembly to the new fire pump room and diesel hydrant pump. The new pump room is in the same location as existing on the Lower Ground floor however the total area will increase in order to accommodate new equipment.

Natural Gas Service

The gas supply to the building will be via the University's existing 210kPa supply. This 210kPA gas main will be a new section of main within Macquarie Avenue. The development will be provided with a single regulated gas supply and main sub meter to each building. Individual gas sub-meters shall be provided to laboratories, each retail unit and the central hot water system as required.

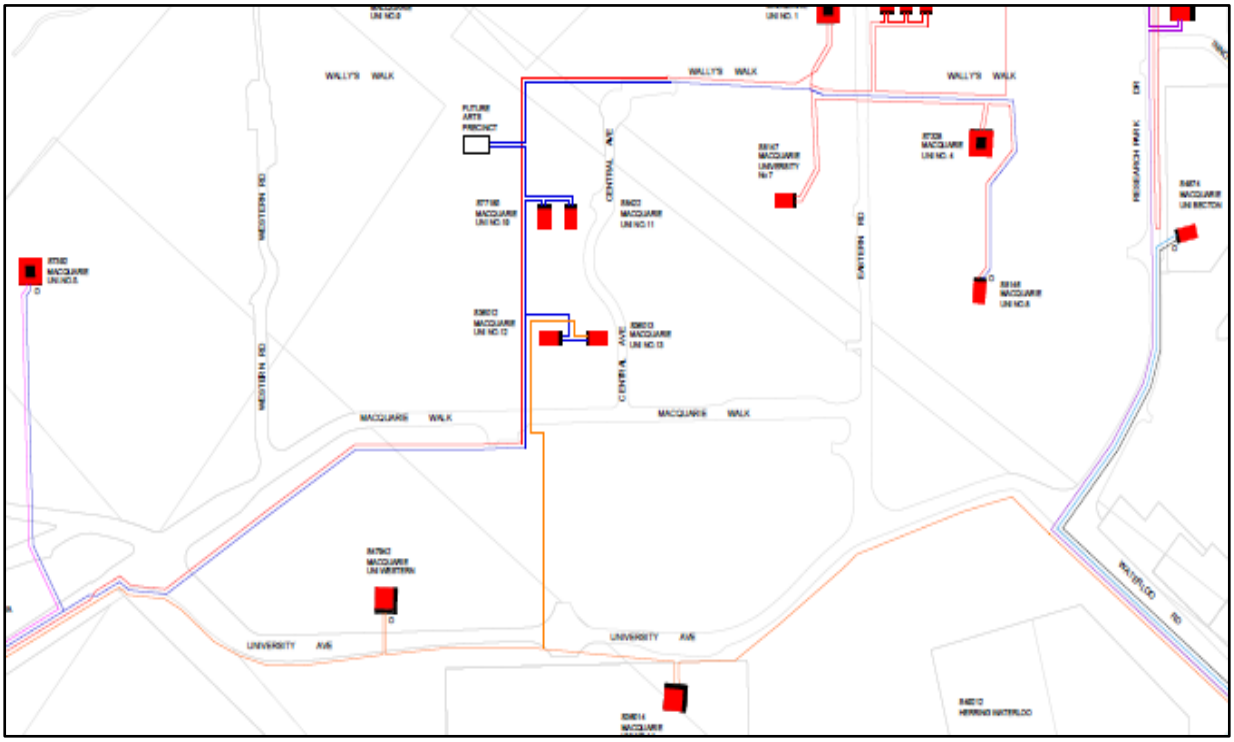
Fire Sprinkler Service

The fire sprinkler system shall be designed to serve all areas of the building to comply with the requirements and regulations of all authorities and codes relevant to the works. The water supply to the sprinkler system will consist of an incoming water main feed within University Avenue and a secondary on-site tank storage providing a Grade 1 supply. Multi-stage electric and diesel booster pumps will be provided to achieve the required pressures and flows. The installation shall also provide a sprinkler brigade booster assembly similar to the hydrant system.

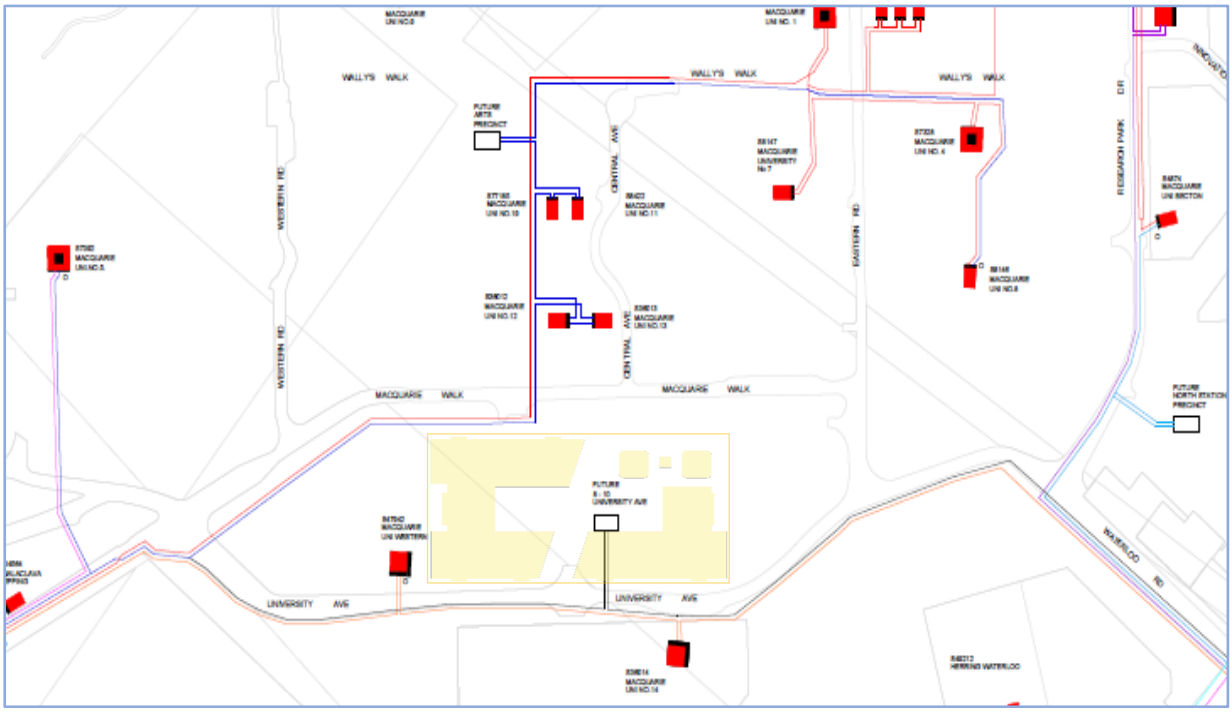
Appendices

Appendix A - HV Power Reticulation

Existing HV Reticulation

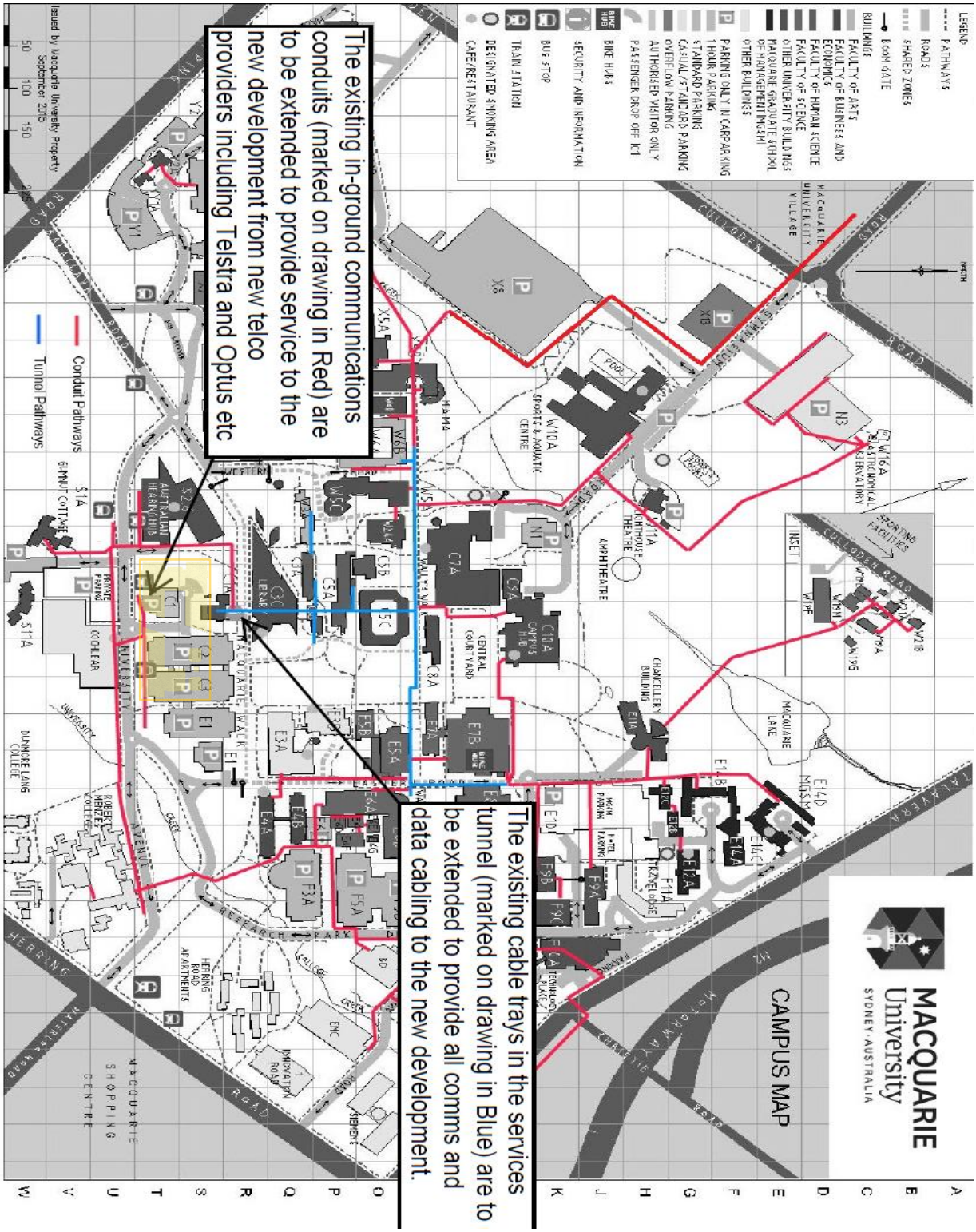


New HV Reticulation

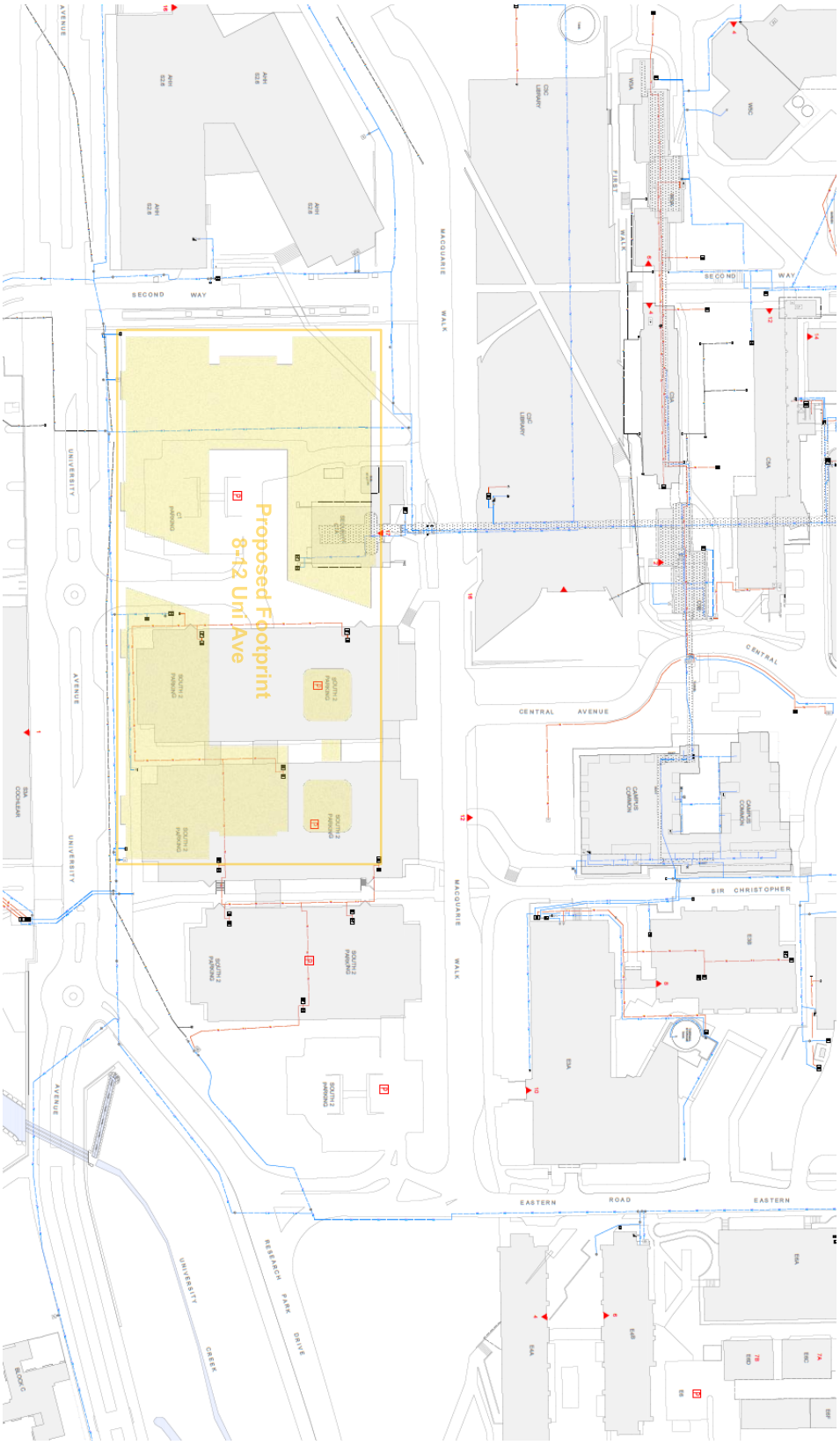


Appendix B – Communication

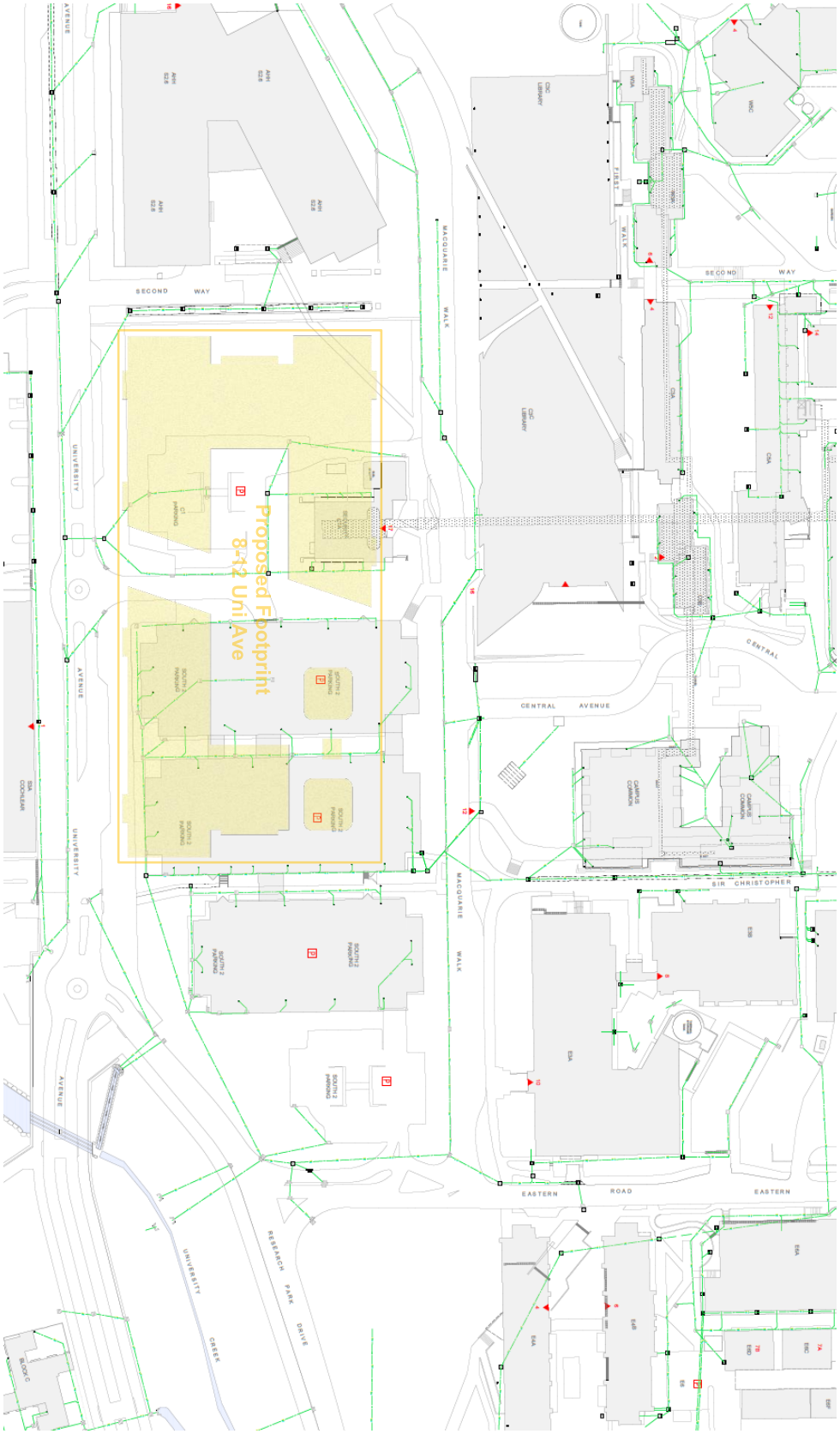
Macquarie University Communication Reticulation Layout



Appendix C – Incoming Water Mains



Appendix D - Stormwater Main



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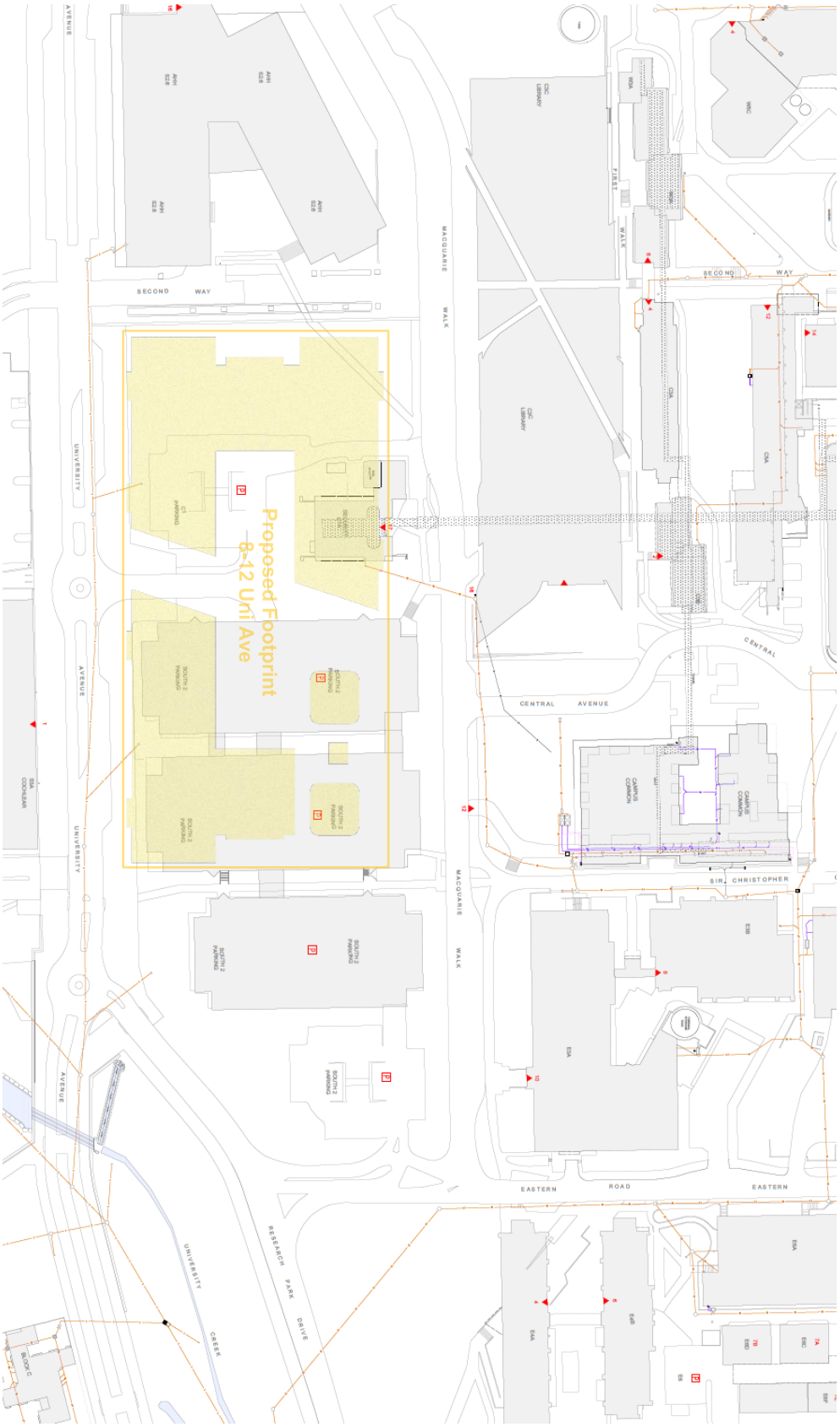
Appendix E – Sewer Main



Appendix F – Incoming Gas Main