HYDRAULIC SERVICES REPORT for

Proposed Private Hospital
At Greenwich

1 – 8 NIELD AVENUE
GREENWICH

Project No 0508 0028

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Prepared For

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The information given in this document takes into account the particular instructions and requirements of our Client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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SECTION - HYDRAULIC SERVICES

1 ESSENTIAL SERVICES

1.1 GENERAL REQUIREMENTS

This report has been prepared with regard to the Department of Planning's Director Generals requirements for Project Application MP 07_0167.

The following Hydraulic and Fire Services will be designed in accordance with the Building Code of Australia and the relevant Australian Standards as listed below:

Essential Service	BCA Clause / Australian Standard	
Fire Sprinkler System	E1.5	AS 2118.4 - 1995
Fire Hydrants	E1.3	AS 2419.1 - 2005
Fire Hose Reels	E1.4	AS 2441 - 2005

Plumbing Service	Code / Australian Standard
Hot & Cold Water Services	NSW Code of Practice & AS3500
Sanitary Plumbing Services	NSW Code of Practice, AS3500 & AS1547
Gas Services	AS 5601 - 2004 & AGL Gas rules
Rainwater Drainage	NSW Code of Practice & AS3500 Stormwater Drainage, BCA Clause F1.1

Pursuant to the provisions of Clause A2.2 of the Building Code of Australia, the above will be in accordance with standard engineering practice and meet the requirements of the Building Code of Australia and relevant Australian Standards.

1.2 SERVICES PROPOSED FOR THE SITE

- Stormwater Drainage
- Sanitary Drainage
- Sanitary Plumbing
- Domestic Cold Water
- Domestic Hot Water
- Non Potable Water Supply (irrigation)
- Fire Hydrant Service
- Fire Hose Reel Service
- Downpipes
- Gas Service

1.3 AVAILABILITY OF SERVICES

- STORMWATER DRAINAGE

It is proposed to divert the existing Council stormwater drainage from Nield Avenue and Morven Gardens around the site and reconnect the stormwater diversion and discharge from the site to the existing Council stormwater drainage main in the stormwater drainage easement at the low side of the site.

- SEWER DRAINAGE

It is proposed to divert the existing sanitary drainage from Nield Avenue and Morven Gardens around the site and reconnect the sewers to the existing sewer on the low side of the site. Discharge from the site will be to the existing Sydney Water Corporation's 225mm diameter sewer at the low side of the site.

- DOMESTIC COLD WATER

It is proposed to connect the water service to the existing 100mm diameter water main in Nield Avenue. The existing water main will be removed from the site and capped off at the site boundary.

- FIRE HYDRANT AND FIRE SPRINKLER SERVICE

It is proposed to connect the water service to the existing 100mm diameter water main in Nield Avenue. Subject to further design development it may be necessary to connect the fire hydrant and sprinkler service to the new 150mm diameter water main in Morven Gardens.

- GAS

It is proposed to connect the gas service to the existing 75mm diameter gas main in Nield Avenue.

- PIPES INGROUND

Notwithstanding the indicative location of in ground pipework on the drawings, all in ground pipework is to be located clear of the critical root zone of all retained trees and vegetation

1.4 SECTION 73 APPLICATION

An application is to be made to Sydney Water Corporation. Sydney Water has provided their services information for the proposal and LHO can confirm the availability of water and drainage services and their capacity to service the site. In addition Sydney Water will advise of capital works contribution charges that will apply to the development of the site. This will also be set out in Sydney Water Corporation's Section 73 Notice of requirements.

2 SERVICES

2.1 STORMWATER DRAINAGE

The site area is approximately 0.76 ha with about 0.46 ha of the existing site developed and the remaining in a state of natural conditions.

The proposed development of the 147 bed building with associated amenities will cover approximately 0.46 ha. This means a total redeveloped site area of approximately 0.76 ha.

The proposed development requires the site discharge to match the existing capacity of the 450mm diameter stormwater main downstream of the site for which Permissible Site Discharge (PSD) and Site Storage Requirement (SSR) are being set up as follows:

PSD = 0.400m3/s based on existing Council drain capacity
SSR = 320m3

A rainwater on-site retention provision of **50m3** for landscape irrigation has been incorporated in the storage facilities.

We anticipate from discussions with Council that their assessment will be based on the redeveloped area (approximately 0.46ha).

Discharge of stormwater from the site will be via a 375mm-diameter pipe connected to council's drainage system at the right of way at the lower side of the site.

Roof drainage capacity will be for 1 in 20 year rainfall, with 1 in 100 year rainfall drainage capacity in areas at higher risk of ponding and water damage such as box gutters and enclosed courtyards. Overflows will be provided to all building areas.

External areas will be served by drains having capacity for 5 –20 year rainfall intensities subject to location and tolerance of ponding. Areas at risk to flooding and water damage shall have 1 in 100 year rainfall capacity and overflow back-up. Note that all rainfall run-off must be drained to the detention and retention storage tanks regardless of capacity of various sections of the drainage system.

Rainfall runoff from surrounding properties and roads will be diverted in grass swales around the site drainage system and be directed to flow to the right of way below the site.

Refer also to the Drainage Concept Brief prepared by LHO and submitted with this submission.

2.2 SANITARY DRAINAGE & PLUMBING

The site will have a load of approximately 1400 fixture units (9.5 each bed) and will discharge to the sewer at the right of way at the low side of the site.

Grease wastewater from kitchens and serveries will be treated by grease arrestor/s and laundry wastewater treated by lint arrestor and cooling provision, all to SWC requirements.

2.3 DOMESTIC COLD WATER

The maximum site water demand is likely to be around 9.0 litres/second and is capable of being supplied by the existing 100mm diameter water main in Nield Avenue.

2.4 DOMESTIC HOT WATER

The hot water heating plant is likely to be a gas fired hot water system. Heating plant could be 5 mains pressure gas hot water heaters manifolded to provide simultaneous supply.

Hot water control in the building can be at the heaters and circulated at in separate pipe systems at 50^{o}C temperature and 65^{o}C temperature for utilities.

2.5 NON POTABLE WATER

Storage for 50m3 of rainwater is to be provided for landscape irrigation water. This water supply is only going to be available following periods of reasonable rainfall and will need to be backed up with main's pressure potable water. The main's pressure water will be protected from contamination by suitable backflow protection devices such as a Reduced Pressure Zone device and valve assembly or an air gap.

2.6 FIRE HYDRANT SERVICE

The buildings will require hydrant protection and the system is likely to be designed to provide 20 litres/second water flow. The service could be best supplied by the existing 150mm diameter water main in Morven Gardens.

2.7 FIRE HOSE REEL SERVICE

The buildings will require internal hose reel protection and the system would be connected to the domestic potable cold water service.

2.8 FIRE SPRINKLER SERVICE

The basement car park areas for the buildings form a combined parking area for 91 cars. This area will require fire sprinkler protection. It is proposed the remainder of the building will be provided with fire sprinkler protection. Fire sprinkler installation is to comply with AS2118.1 – 1999. The service could be best supplied by the existing 150mm diameter water main in Morven Gardens.

2.9 GAS SERVICE

The site will require gas for domestic hot water heating and pool heating. Total gas demand is expected to be up to 3,000MJ/hour. The supply will be from the existing 210 kPa 32mm diameter gas main in Nield Avenue.

3 DRAFT STATEMENT OF COMMITMENTS

- Sewer, water, gas and stormwater mains are available to service the site.
- The service mains available have the capacity to service the site.
- Authorities' mains within the site will be capped off or diverted around the site in accordance with the respective authorities' requirements.
- Services will be kept clear of critical root zones of retained trees and vegetation.
- Recycled rainwater will be treated and re-used for landscape irrigation to reduce demand on potable water supplies.

4 APPENDIX A – AUTHORITIES MAINS DIAGRAMS

- SWC sewer
- SWC water main
- Gas authority gas main
- Lane Cove Council stormwater main