



Driven by excellence,
built on experience.

HYDRAULIC SERVICES UTILITY SERVICES REF REPORT ALBURY WODONGA REGIONAL HOSPITAL PROJECT – NORTHEAST BUILDING

18th February 2025



HYDRAULIC SERVICES UTILITY SERVICES REF REPORT Albury Wodonga Regional Hospital – Northeast Building

01	9 th October 2024	Utility Services REF Report
02	8 th January 2025	Update to Section 2
03	24 th January 2025	Update per Architectus and HI comments
04	18 th February 2025	Update per HI Planning
Rev #	Date	Description

APPROVALS

01	J. Skubevski	Superseded	D. Power	D. Power
02	J. Skubevski	Superseded	D. Power	D. Power
03	J. Skubevski	Superseded	D. Power	D. Power
03	J. Chung	Current	J. Skubevski	D. Power
Rev #	Author	Status	Reviewer	Approver

PREPARED BY:

WSCE

ABN 36 300 430 126

Level 20, 66 Goulburn Street,

Sydney 2000 NSW Australia

T 02 9299 1312



PREPARED FOR:

HEALTH INFRASTRUCTURE

Reserve Road

St Leonards, NSW 2065 Australia

T 02 9978 5402



Health
Infrastructure

Contents

- 1 INTRODUCTION..... 1
- 2 HYDRAULIC SERVICES DEMAND CALCULATIONS 1
 - 2.1 WATER SUPPLY DEMAND CALCULATIONS 2
 - 2.2 SEWER DRAINAGE DISCHARGE CALCULATIONS 2
 - 2.3 NATURAL GAS DEMAND CALCULATIONS..... 2
- 3 HYDRAULIC SERVICES CONNECTIONS 3
 - 3.1 WATER..... 3
 - 3.2 SEWER..... 3
 - 3.3 NATURAL GAS 3

1 INTRODUCTION

WSce have been engaged by Health Infrastructure (HI) to prepare a Utility Services Report for the proposed redevelopment works of the Northeast Building and northwest carpark located within the Albury Wodonga Regional Hospital Project relating to the hydraulic services.

The Albury Wodonga Regional Hospital Project site ("the site") is located at 201 Borella Road, East Albury NSW 2640 and is shown in **Figure 1-1** (approximate site location identified in red). The site is encompassed by East Street to the east, Borella Road to the north, Keene Street to the west and the Eastern Hill Reserve to the south.

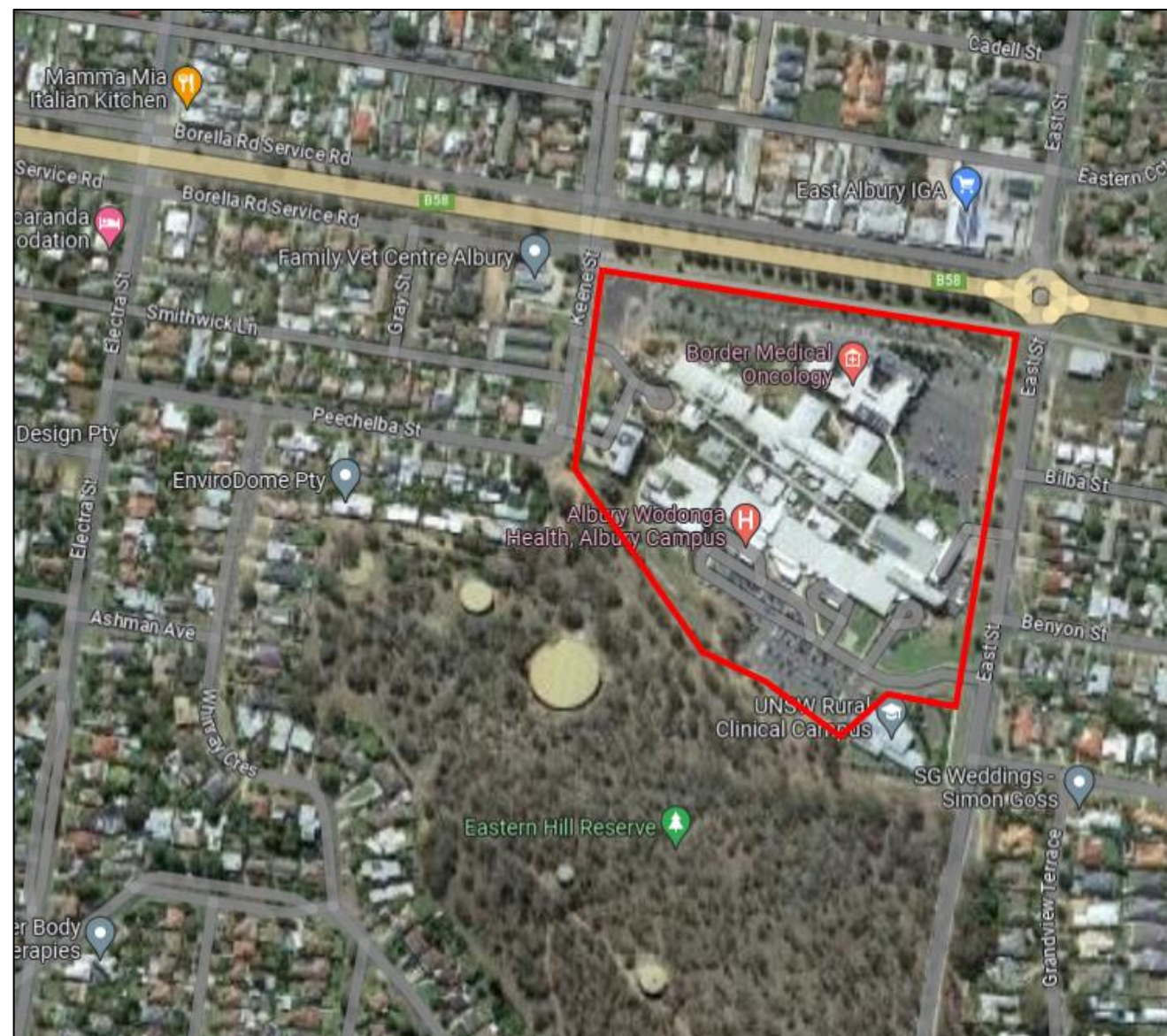


Figure 1-1: Aerial view of property boundary (Source: Google Maps)

This report aims to describe the existing utility mains that surround the site and proposed servicing strategies as well as preliminary load assessments based on the proposed early works project scope.

Figure 1-2 below indicates the location of the proposed Northeast building.

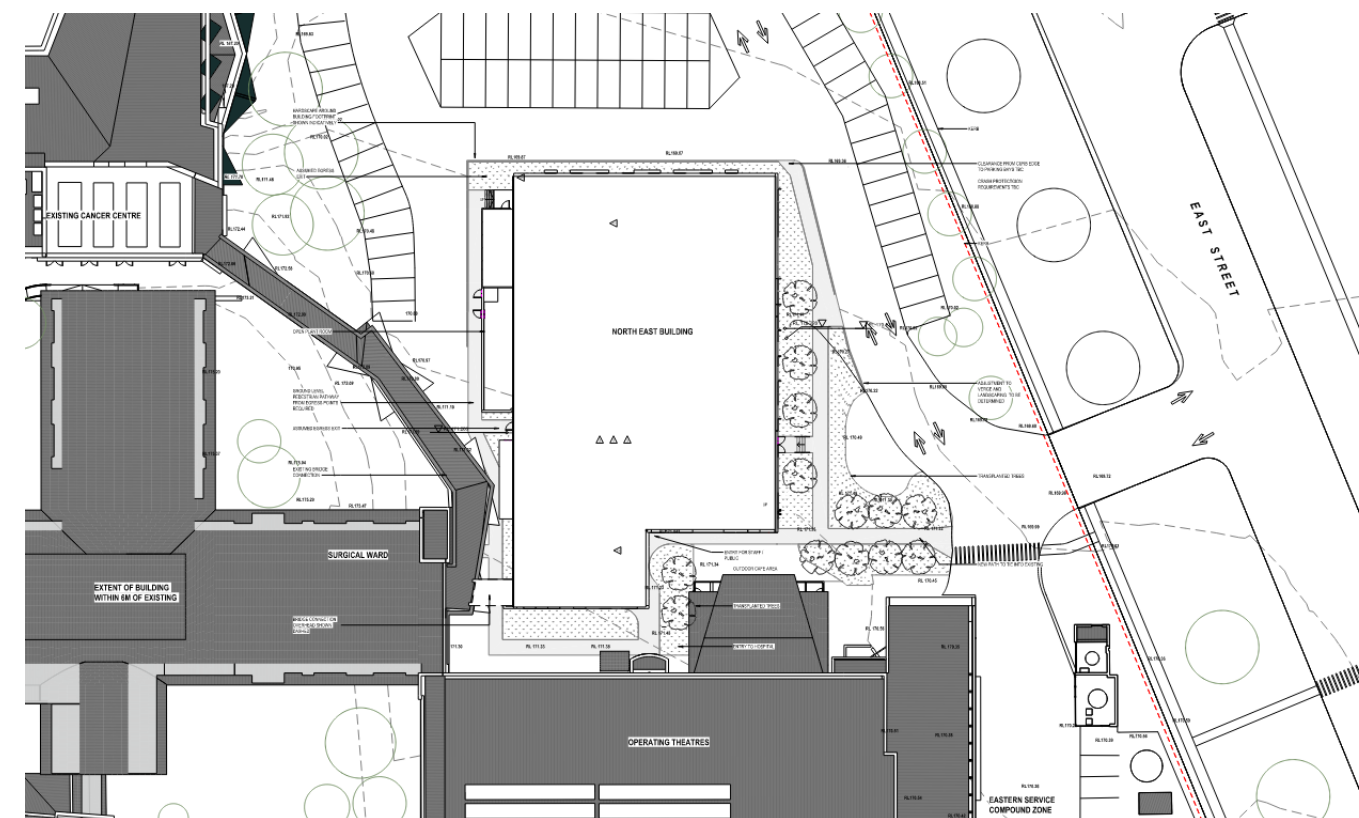


Figure 1-2: Proposed Northeast building location relative to the site (Source: Hassell)

2 HYDRAULIC SERVICES DEMAND CALCULATIONS

ACC have existing demand information of their utility mains readily available for which they can utilise in combination with the below calculations to determine if there are any required amplifications as a result of the proposed development. Based on initial consultation with the council, it is not perceived that the works under this REF will impact existing utility infrastructure.

This section of the report which calculates the demands for the various hydraulic utility services references the following documents and utilises the methods described within:

- Albury City Council Engineering Guidelines for Subdivisions and Development Standards Part 4 – Water Reticulation Design (July 2009), specifically Section 3.2 (Demands).
 - Section 3.2 – references the Water Services Association of Australia (WSAA) Water Supply Code of Australia WSA 03-2011-3.1 (Melbourne Retail Water Agencies Edition) Version 2.0 Part 1: Planning and Design
- Albury City Council Engineering Guidelines for Subdivisions and Development Standards Part 5 – Sewerage Reticulation (July 2009), specifically Section 4 (Flow Estimation).
 - Section 4 – references the Water Services Association of Australia (WSAA) Gravity Sewerage Code of Australia WSA 02-2014-3.1 (Melbourne Retail Water Agencies Edition) Version 2.0 Part 1: Planning and Design
- Water Directorate Section 64 Determination of Equivalent Tenements Guidelines

2.1 WATER SUPPLY DEMAND CALCULATIONS

The Northeast building will be occupied by clinical consultancy departments and outpatient services (fixtures consisting mainly of basins and WC's), and therefore the building demands have been assessed using commercial implications. Healthcare implications rely on accommodation numbers i.e. beds to determine ET, which this building does not contain.

The equivalent tenement (ET) figure and subsequent calculations have been based only on the perceived increase from the Northeast building only, these calculations do not account for any of the existing population.

Table 1: Maximum daily water demand

Classification	Max Day Demand (kL/Ha/d)	Hectare	Max Day Demand (kL/Day)
Commercial – Suburban	41	0.29	11.89

Table 2: Average daily water demand increase calculation

Max Day Demand (kL/Day)	Max Day Demand / Average Day Demand	Average Day Demand (kL)
11.89	2	5.95

2.2 SEWER DRAINAGE DISCHARGE CALCULATIONS

To determine the average daily sewer discharge for the proposed development, an estimate of the daily sewer discharge in terms of litres/day has been made by adopting information from the NSW Water Directorate. This document suggests a 60% water to sewer discharge factor as appropriate based on the standard equivalent tenement figures.

The figures for the average and peak day sewer demands have been documents in the below tables.

Table 3: Maximum daily sewer demand

Classification	Max Day Water Demand (kL/Day)	Max Sewer Demand (kL) (60% of Water Max Demand)
Commercial – Suburban	11.89	7.13

Table 4: Average daily sewer demand increase calculation

Classification	Average Day Sewer Demand (kL/Day)	Average Sewer Demand (kL) (60% of Water Average Demand)
Commercial – Suburban	5.95	3.57

2.3 NATURAL GAS DEMAND CALCULATIONS

The provision of natural gas services will not be considered for this project as it is currently the directive of all new healthcare projects to utilise electric means of supply for hydraulic / mechanical plant and equipment. Therefore, the direction for all new healthcare facilities in Australia is to avoid the provision of natural gas services

3 HYDRAULIC SERVICES CONNECTIONS

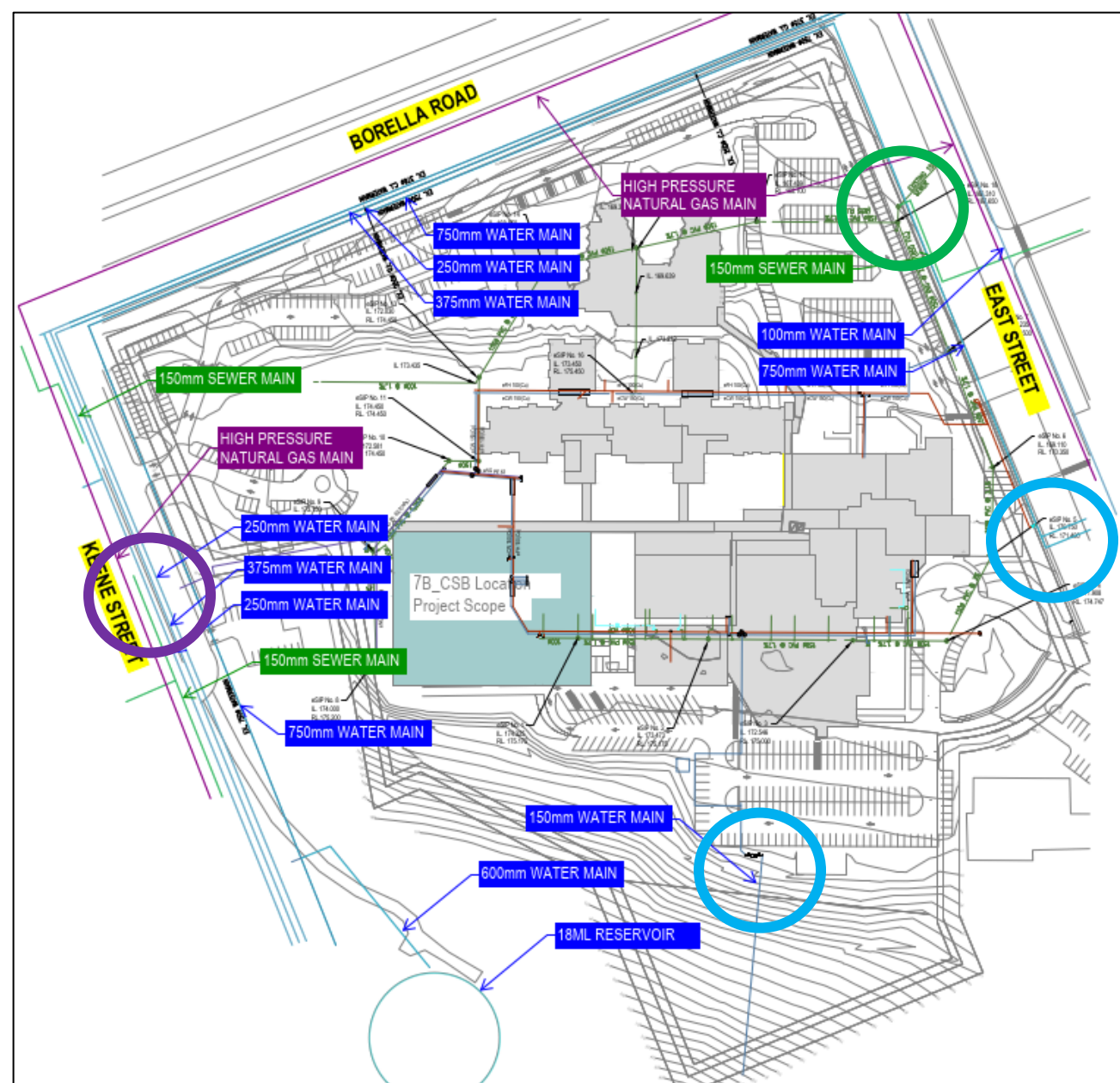


Figure 3-1: Utility services surrounding the site

3.1 WATER

The existing hospital site has access to multiple ACC water mains as identified below and in Figure 3-1:

- 250mm, 250mm, and 375mm diameter water mains in Keene Street (western side),
- 750mm diameter water main in Keene Street (eastern side),
- 250mm, 375mm, and 750mm diameter water mains in Borella Road (southern side),
- 150mm diameter water main in East Street (eastern side),
- 750mm diameter water main in East Street (western side), and
- 150mm diameter water main that reticulates from Eastern Hill Reserve (south of the site).

The site currently has two existing connections to the utility mains described above, including:

- A drinking water supply connection to the 150mm diameter water main that reticulates from Eastern Hill Reserve (south of the site), and
- A fire services water supply connection to the 750mm diameter water main that reticulates in East Street (western side).

It will be the intention of the design to retain these existing connections (shown in the blue circles on Figure 3-1). Subject to further discussion with the project team and council, there may be requirements to provide water storage and additional tapping points to satisfy the requirements of the New South Wales and Victorian health guidelines that are currently in place.

3.2 SEWER

The existing hospital site has access to multiple ACC sewer mains as identified below and in Figure 3-1:

- 150mm diameter sewer main in Keene Street (western side),
- 150mm diameter sewer main in Keene Street (western side), and
- 150mm diameter sewer main in East Street (western side),

The entire site currently gravity drains towards the 150mm utility sewer main in East Street. It will be the intention of the design to retain this existing connection (shown in the green circle on Figure 3-1).

3.3 NATURAL GAS

The existing hospital site has access to multiple APA Group natural gas mains as identified below and in Figure 3-1:

- High pressure natural gas main in Keene Street (western side),
- High pressure natural gas main in Borella Road (northern side),
- High pressure natural gas main in East Street (eastern side),

The site currently has an existing connection to the high pressure natural gas main in Keene Street and it will be the intention of the design to retain this connection (shown in the purple circle on Figure 3-1).