

Meadowbank Education and Employment Precinct Schools Project Infrastructure Management Plan – Sewer Water & Natural Gas Services

SSD 18_9343

Prepared by Warren Smith & Partners Pty Ltd

For School Infrastructure NSW

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Meadowbank Education and Employment Precinct Schools Project

Infrastructure Management Plan – Sewer, Water & Natural Gas Services

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03	24/08/2018	Final Draft SSDA Issue
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HYDRAULIC SERVICES

1 INTRODUCTION

Overview

This Infrastructure Management Plan – Sewer, Water and Natural Gas has been prepared by Warren Smith & Partners on behalf of the NSW Department of Education (the Applicant). It accompanies an Environmental Impact Statement (EIS) in support of State Significant Development Application (SSD 18_9343) for the Meadowbank Education and Employment Precinct Schools Project (hereafter referred to as MEEPSP) at 2 Rhodes Street, Meadowbank (the site).

MEEPSP will cater for 1,000 primary school students and 1,620 high school students. The proposal seeks consent for:

- A multi-level, multi-purpose, integrated school building with a primary school wing and high school wing. The school building is connected by a centralised library that is embedded into the landscape. The school building contains:
 - Collaborative general and specialist learning hubs, with a combination of enclosed and open spaces;
 - Adaptable classroom home bases;
 - Four level central library, with primary school library located on ground floor and high school library on levels 1 to 3.
 - Laboratories and workshops;
 - Staff workplaces;
 - Canteens;
 - Indoor gymnasium;
 - Multipurpose communal hall;
 - Outdoor learning, play and recreational areas (both covered and uncovered).
- Associated site landscaping and public domain improvements;
- An on-site car park for 60 parking spaces; and
- Construction of ancillary infrastructure and utilities as required.

The purpose of this Infrastructure Management Plan – Sewer, Water and Natural Gas is to demonstrate that consultation has been made with the relevant agencies, where possible, detailing the existing capacities of their systems and any augmentation and easement requirements for the development of the provision of utilities services.

Response to SEARs

The Infrastructure Management Plan – Sewer, Water and Natural Gas is required by the Secretary’s Environmental Assessment Requirements (SEARs) for SSD 18_9343. This table identifies the SEARs and relevant reference within this report.

Table 1 – SEARs and Relevant Reference

SEARs Item	Report Reference
14 - Utilities	Sewer, Water and Natural Gas

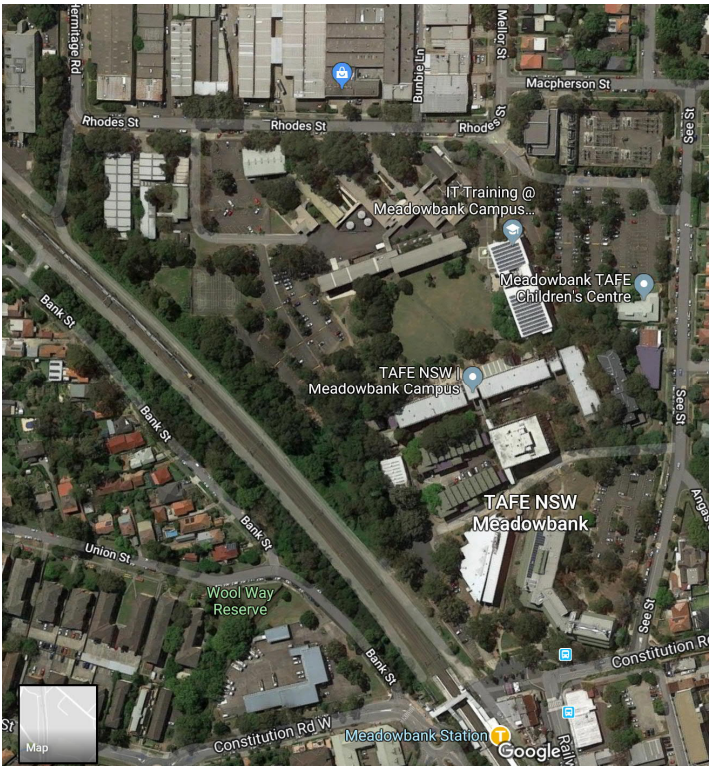


Figure 1: Aerial View of Property Boundary (Source: Google Maps)

The site is separate from but directly adjacent to the current TAFE NSW Northern Sydney Institute Meadowbank Campus and is bounded by Rhodes Street, Sydney Trains Northern Line and the TAFE site.

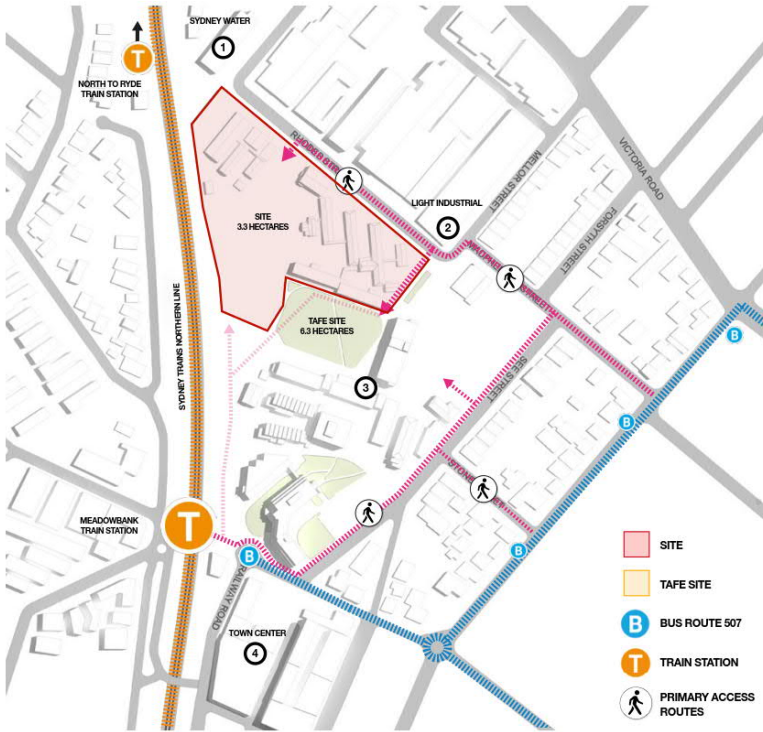


Figure 2: The site

1.1 STANDARDS & DESIGN GUIDES

The hydraulic services will be designed to the minimum of the following Standards, except where noted in the deviation list:-

- EP&A – ACT & Regulation
- Plumbing & Drainage – Act & Regulation
- National Construction Code (NCC) – 2019
- Plumbing Code of Australia (PCA) – 2016
- AS 3500-2015 – Plumbing and Drainage Set
- AS 5061-2004 – Gas Installations
- Trade Waste requirements (based on Local Guidelines)
- Local Stormwater requirements
- Sydney Water / Jemena
- DIN 1988-300 Drinking water supply systems; pipe sizing
- DVGW W551-2004 Drinking water heating and drinking water piping systems; technical measures to reduce Legionella growth; design, construction, operation, and rehabilitation of drinking water installations
- AS 1170.4 Structural design actions Earthquake actions in Australia

2 UTILITY SERVICES

A Sydney Water Corporation Notice of Anticipated Requirements for Section 73 Subdivider/Developer Compliance Certificate (Sydney Water Act 1994, Part 6 Division 9) PENDING DEVELOPMENT CONSENT has been received and is attached to this report.

This is an informative document only and will need to be re-applied for when final Development Consent has been received, but it gives an indication on the requirements of Sydney Water for the sewer and water mains works.

2.1 SEWER MAINS (UTILITY)

2.1.1 EXISTING SEWER MAINS

The site has access to three (3) Sydney Water sewer mains that range in size from 150mm-300mm diameter. These connections are located as follows;

- 225mm sewer main runs from Rhodes Street through the middle of the site following the central depression, then crosses beneath the railway embankment. This sewer main drains the surrounding upstream industrial and residential areas west of Herbert Street.
- 225mm sewer main runs along the north side of Rhodes Street to the west towards Hermitage Road.
- 150mm sewer main runs along the north side of Rhodes Street to the east towards Bunbie Lane.

These sewer mains are required to be maintained to service the upstream connections.



2.1.2 SEWER AVAILABLE CAPACITY

In order to express the results in a total daily sewer discharge, an estimate of the average daily sewer discharge in terms of L/Day has been made by adopting information derived by the NSW Water Directorate. Where the standard equivalent tenement figures suggest that a 60% water to sewer discharge factor is appropriate. Refer to table below for this calculation.

Sewer discharge calculation

Total Units	Average Sewer Discharge 60% of L/ unit/day	Total Average Daily Sewer Discharge (kL)
Special Uses		
School	60% of 62,600 = 37,560	37.56

2.1.3 SEWER MAINS SUMMARY

A Sydney Water Corporation Notice of Anticipated Requirements for Section 73 Subdivider/Developer Compliance Certificate (Sydney Water Act 1994, Part 6 Division 9) PENDING DEVELOPMENT CONSENT has been received and is attached to this report.

- The proposed development will not effect the existing DN225 SGW sewer main traversing the site as it is running in the area between the new building and the playing fields, therefore a deviation of the sewer may not be required. This will need to be established with Sydney Water Corporation and amended in the final Notice.
- Sizing will need to be determined subject to further investigation using WSA 02-2002-2.2 Sewerage Code of Australia. A catchment plan and flow schedule will need to be included when the design is undertaken.

2.2 WATER MAINS (UTILITY)

2.2.1 EXISTING WATER MAINS

The site has access to one (1) 100mm diameter Sydney Water water main runs along the northern side of Rhodes Street.

The development site has two (2) existing water main connections for TAFE in Rhodes Street. These are to be removed and incoming services capped at the main with this work being undertaken in the demolition package.



2.2.2 WATER AVAILABLE CAPACITY

The assumption taken in determining the average daily potable water demands for the proposed development were taken from the Sydney Water table, “Average Daily Water Use by Property Type” and is presented in the tables below.

Where possible, potable water usage will be reduced by the use of low flow taps and sanitary fixtures, typically using the following flow rates:

- Shower = 9.0L/m
- Basin = 7.7L/m
- Sink = 7.7L/m

Average Daily Water Demand

Development Type	Units	Average Demand (L/Metric Unit/Day)
Special Uses		
School	3,120 Students	20.00

Average Daily Water Demand Calculation

Total Units	Average Demand (L/ Unit/Day)	Total Average Daily Water Demand (kL)
Special Uses		
School	3,120 x 20.00 = 62,400	62.40

2.2.3 WATER MAINS SUMMARY

A Sydney Water Corporation Notice of Anticipated Requirements for Section 73 Subdivider/Developer Compliance Certificate (Sydney Water Act 1994, Part 6 Division 9) PENDING DEVELOPMENT CONSENT has been received with the following Water Service Works noted:

- The existing 100mm diameter water main in Rhodes Street can service the proposed development. This would be for the domestic supply only;
- A 'Statement of Available Pressure and Flow' for this main shows that it is not capable of providing the requirements for fire fighting purposes therefore,
- Therefore a full capacity on site fire water tank will be provided for the fire sprinkler and fire hydrant systems and will be services from the existing 100mm diameter water main in Rhodes Street.

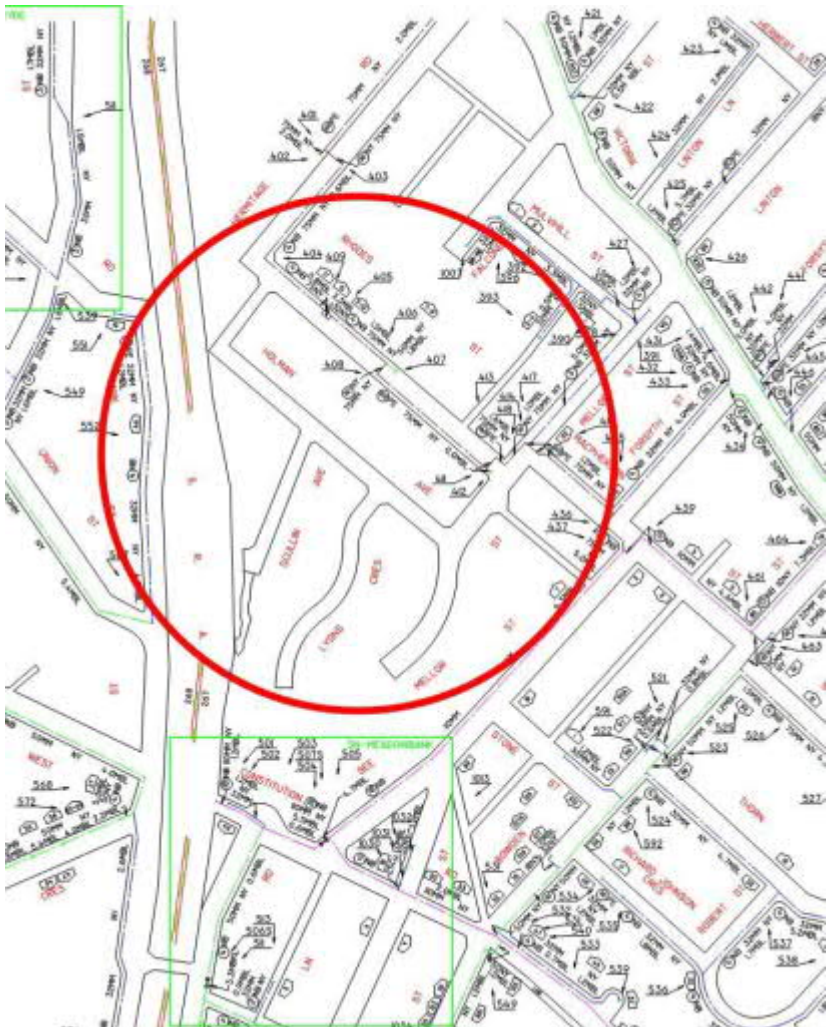
2.3 NATURAL GAS MAINS (UTILITY)

2.3.1 EXISTING NATURAL GAS MAINS

The site has access to one (1) Jemena natural gas main which is a medium pressure 210kPa 75mm diameter nylon gas main located on the north and south side of Rhodes Street.

The gas main in the northern footpath may require treatment as a result of the proposed works.

The development site has two (2) existing medium pressure 210kPa connections for TAFE to the Jemena gas main in Rhodes Street. These are to be removed and incoming services capped at the main with this work being undertaken in the demolition package.



2.4 RAINWATER AND NON-POTABLE WATER REUSE SERVICES

2.4.1 RAINWATER HARVESTING

The City of Ryde's DCP Part 8.2 - Section 3.3.2 states that the proposed development must include the following rainwater harvesting provisions:

- A rainwater tank to meet greater than 50% of non-potable water demand; and
- 80% of the water supply for use within open spaces (including irrigation, ponds, water features, etc.) must be provided from sources other than potable water such as rainwater tanks or treated grey-water.

In order to meet the above requirements a rainwater tank is to be provided and sized to meet the irrigation and other non-potable water demands of the building.

Rainwater from an adequately sized roof catchment is to discharge into the rainwater tank and a potable water make-up is to be provided.

A recycled water treatment and pumped reticulation system will be provided to supply all of the landscape irrigation and non-potable water fixtures as outlined in the EFSG technical guidelines.

There is potential to reuse recycled water for toilet flushing but this is a 5 star additional initiative rather than 4 star Green Star Education equivalent initiative which allows for irrigation only.

The recycled water system will incorporate filtration and treatment equipment to meet the requirements of the Council, EPA and other regulatory authorities.

Fire test water will be recycled back to the fire tank to reduce water wastage.