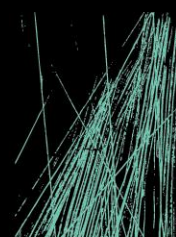


INTEGRATED WATER MANAGEMENT PLAN

MOSMAN HIGH SCHOOL MAJOR UPGRADE



JHA

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DOCUMENT CONTROL SHEET

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1 INTRODUCTION

JHA Engineers have been engaged by Multiplex to provide the design of hydraulic and fire services for the proposed Mosman High School development located at 745 Military Road, Mosman (LOT 1, DP1268793)

This report has been prepared by JHA Consulting Engineers to identify and summarise the proposed hydraulic and fire services utility infrastructure requirements which will be incorporated into the design of the proposed Mosman High School project.

This report demonstrates that the existing authorities' sewer and potable water infrastructure have adequate capacity to support the proposed development.

This report should be read in conjunction with the Architectural design drawings and other consultant's design reports submitted as part of this application.

The following objectives have been identified as forming the basis of the proposed development of the existing educational establishment:

- Create an educational precinct to create a high-quality teaching and learning environment for staff and students;
- Establish additional floor space to increase availability and efficiency of teaching functions for Mosman High School Campus;
- Improve site access, car parking and surrounding traffic functions in the precinct;
- Strengthen pedestrian linkages throughout the campus;
- Enhance the overall campus aesthetic, upgrade the public domain to create visually interesting transitions through the campus, and promote the heritage elements of the campus;
- Ensure minimal environmental impact;
- Maintain the existing infrastructure assets and provide opportunities for new outdoor environments;
- Ensure development is compatible with surrounding development and the local context; and
- Create a safe environment to support and nurture the boy's growth.

The site and proposed design are considered to meet the objectives of the project as it allows for development on land that has been previously used for educational purposes.

2 DESCRIPTION OF THE PROPOSAL

2.1 OVERVIEW

Development consent is sought for the following works:

- Demolition of Building B, Building C and part Building E;
- Removal of existing sports court and surrounding retaining walls and nominated trees;
- Construction of a new part 3/ part 4 storey school building (Building G) plus rooftop fencing on the corner of Military Road and Belmont Road providing:
 - Administration and staff facilities;
 - Multipurpose gym/hall;
 - Library;
 - Canteen facilities;
 - General and senior learning units;
 - Science learning unit;
 - Health / PE and performing arts unit; and
 - Learning and admin support unit.
- Associated landscaping works including new outdoor play areas, a rooftop play space and rooftop basketball court; and
- Relocation of the main pedestrian entrance from Military Road to Belmont Road.

2.2 SCOPE OF THIS REPORT

This report has been prepared to describe and document JHA's proposed integrated water management plan for the Mosman High School Major Upgrade development. The preparation of this strategy has involved several interdependent technical considerations as follows:

- Proposed water supplies to buildings and external areas
- Opportunities for rainwater harvesting and re-use infrastructure
- Proposed end uses of potable and non-potable water

3 PROPOSED ALTERNATIVE WATER SUPPLIES

The development site does not have any alternative authority water supply infrastructure available to supply the development and hence are not proposed for the Mosman High School project.

3.1 POTABLE WATER

A life cycle analysis of the reuse plant equipment and considering the nature of the facility in relation to ongoing maintenance, potable water systems for human consumption, hygiene purposes and cistern flushing for the site is to be supplied from the primary water supply from the authority potable cold-water main nominated by Sydney Water.

3.2 NON-POTABLE WATER

An alternative non-potable water supply is provided to the site via a new and existing rainwater tanks supplementing the supply for landscape drip irrigation.

It is noted an existing above ground 10kL rainwater tank is provided against Building D which provides hose taps to supply landscape irrigation which will be retained.

Calculations undertaken from the available historical rainfall data, available roof collection area for the new Building G while taking into consideration the project limitations which indicated the project will benefit by implementing a site wide reuse system.

A new 7.5kL rainwater tank is intended to be provided to collect the roof water from the lightweight metal roof via a conventional stormwater drainage system and discharged into an in-ground rainwater tank located in the central courtyard via a first flush system.

The remaining outdoor play areas that are subject to rainfall will be drained via a combination of siphonic and conventional stormwater drainage systems however is not intended to be collected and reused on the site due to the water quality captured in this area and additional maintenance associated hence will be discharged directly to the stormwater drainage network.

A water balance study has been conducted based on the 550m² of roof area and a 7.5kL tank which will be installed to maximise rainwater capture. Refer to Appendix A for further details.

The non-potable water supply will include pre-treatment via automatic backwash filtration prior to supplying landscape drip irrigation.

In the event of significant storms, overflow from the rainwater tank will discharge into the civil stormwater infrastructure to permit safe management of this water to downstream areas (refer to Stormwater Management SSDA Report by TTW).

Reuse water collection and distribution to other non-potable applications such as toilet flushing have been discounted due to risks associated with maintenance and infection control measures within this type of project.

4 PROPOSED END USERS

4.1 POTABLE WATER

Potable cold water is proposed to be used for the following applications:

- Sanitary fixtures in staff and student areas
- Appliances and equipment
- Fire hydrant services
- Drenchers (if required)
- Fire hose reel services

4.1.1 HIGH EFFICIENCY FIXTURES

To reduce the sites potable water demand, high efficiency rated by WELS fixtures and fittings shall be used throughout the facility as per the ESD report and EFSG DG53 requirements which area listed below. Final selections are to be confirmed.

Fixture	WELS Star Rating
Showerheads	4 stars
Toilets	4 stars
Urinals	5 stars
Basins	5 stars
Sink	5 stars
Washing Machines	5 stars
Dishwashers	5 stars
Taps and flow controllers	5 stars

4.1.2 METERING

To reduce the site's potable water consumption, effective metering strategy is considered to clearly identify leaks, poor operational performance and to assist in water management of specific floors/departments to meet the overall targets for the site.

Metering is supplied to major water uses on the site which include:

- Potable water backup supply for rainwater reuse
- Irrigation system
- Amenities block
- Canteen

4.2 NON-POTABLE WATER

As stated in **Section 3.2**, the non-potable water supply is proposed to supplement landscape irrigation via collection of roof water.

A moisture sensor override is being considered to mitigate unnecessary watering.

5 APPENDIX A

Description	Value
Size of rainwater tank	7,500 L
Rainwater + reuse water captured (annually)	181.77 kL
Total reuse demand	255.67 kL

