

Curl Curl North Public School

Water Management Statement

Incorporating Integrated Water Management Plan, Water Sensitive Urban Design Measures, and Flood Risk Management Report

18 May 2017 | 16-258

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Document control

Rev No	Date	Revision details	Approved	Verified	Prepared
A	18/05/17	Final Issue	SDC	JG	JL

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1.0 Introduction

This Water Management Statement has been prepared by Woolacotts Consulting Engineers on behalf of the New South Wales Department of Education (the 'Applicant').

Curl Curl North Public School is an existing facility located on the corner of Playfair Road and Abbott Road. Currently the school facilities include games courts, outdoor learning areas, classroom blocks, a library, staff carpark and a series of demountable buildings.

Refer to Figure 1 below for the site location.



Figure 1 – Site location

The school is proposing to upgrade their facilities with major redevelopment to the southern zone of the site which is currently a large grassed area. The redevelopment works include the addition of a new permanent block of classrooms, outdoor learning areas and carpark to the south, and new sports courts and playground to the north.

The purpose of this Water Management Statement is to incorporating an Integrated Water Management plan, Water Sensitive Urban Design (WSUD) measures and Flood Risk Management for the proposed development as detailed within the EIS.

The site specific civil related matters outlined in the SEARs such as drainage, flooding and erosion & sediment control plan have been addressed in this report.

2.0 Existing Site

The site is approximately 28,000m² and has frontages to Playfair Road and Abbott Road. It is currently approximately 40% impervious surfaces comprising of hard paved games courts, parking areas and existing buildings.

The site falls at an approximate grade of 3% from the north to the south. Stormwater runoff from the site is predominately via overland flow to a final pit at the south-east end of the site discharging through a 375mm diameter pipe to Councils system within Abbott Road, directed towards Curl Curl Lagoon.

The site has been identified by Council to be within the medium flood risk planning precinct due to its proximity to Curl Curl Lagoon and location within the lower end of the larger catchment.

It is proposed to construct new facilities including a permanent block of classrooms, outdoor learning areas and carpark to the south, including new sports courts and playgrounds to the north.

3.0 Integrated Water Management Plan

3.1 Existing Environment

General details of the site have been provided in the previous section of this report. The following outline specific details in relation to the site.

3.1.1 Catchment Hydrology and Hydrogeology

The catchment area above the site has an area of approximately 28,000m² and falls from north of RL 11.00 to the south of the site of RL 3.50. This gives an average slope of 3% through the proposed development.

The catchment ground conditions consist of large landscape areas and an existing school buildings. The site is comprised of surficial sandy fill overlying alluvial soils comprising predominantly sand, clayey sand and silty sand. The sandy soils have good permeability for drainage.

3.1.2 Soil Conditions

The soil conditions reported in the geotechnical investigation prepared by JK Geotechnics dated 23 December 2016 for the site would be typical throughout the catchment. They consist of:

- Fill comprising silty sand covered with grass or mulch
- Alluvial soils comprising sand, silty sand and clayey sand with occasional sandy clay and silty clay bands below the fill

3.1.3 Vegetation Cover

The vegetation cover in the catchment area above the site is typically short – medium length grass consisting of trees, few school buildings with minor pavement areas, and an access asphaltic concrete road.

3.1.4 Ground Water

The geotechnical investigation prepared by JK Geotechnics indicated that each borehole was 'dry' during drilling and on completion of drilling. It was noted that groundwater levels may not have stabilised within the short observation period. No long term groundwater monitoring was carried out.

3.1.5 Site Constraints

An overland flow path has been provided underneath the buildings to drain overland flow from the upstream catchment. Building levels have also been raised to mitigate overland flow issues.

Discharge of the post developed site's stormwater system is proposed at the existing Council stormwater pit at the south within Abbott Road.

The location and inverts of Councils existing stormwater assets are fixed.

3.1.6 Water Quality Conditions

In general the water quality in the existing discharge locations will be typical of low density residential areas. The main pollutants will be litter and oils/ grease from roadways, and existing soil condition pollutants.

3.2 Site Stormwater Discharge

The proposed development has an overall increase of impervious area from the pre-developed conditions. Peak stormwater outflows will increase in the post-developed site as a result.

Due to the site's proximity within the floodplain, on-site stormwater detention is not likely to provide significant benefit for the catchment with respect to flood mitigation and is therefore not required for this development.

3.3 Objectives and Performance Standards

3.3.1 Water Consumption

Reduced water consumption may be proposed through the use of latest technology water saving devices (subject to the project requirements) such as:

- Dual flush toilets
- Flow limited taps and showers
- Drip irrigation of landscaping

In addition to this a rainwater collection and reuse tank may be used to collect clean rainwater for toilet flushing and irrigation of landscaping subject to project requirements.

4.0 Water Sensitive Urban Design Measures

4.1 Stormwater Quality/ Treatment

Warringah Council Water Management Policy outlines stormwater quality requirements.

The quality of stormwater runoff from the site will be improved by the use of WSUD principles such as:

- Grassed swales
- Open turf areas
- Collection, reuse and bypass of clean roof water (subject to project requirements)

The above proposed treatment devices will be incorporated within the system design in order to achieve an overall increase of stormwater quality.

4.2 Erosion and Sediment Control

During construction, erosion and sediment control measures will be provided in accordance with the requirements of "Managing Urban Stormwater Soils and Construction, 4th Edition (Blue Book)". These measures will include silt fences on the low side of the site, silt traps at stormwater pits. Dust control measures will also be provided.

Other measures to be provided on site during construction include construction exits for all vehicles leaving the site, and revegetation of the site as soon as practicable. Erosion control measures must be inspected and maintained after each rain event and at intervals not exceeding two weeks.

5.0 Flood Risk Management

5.1 Flood information

A flooding information report was obtained from Northern Beaches Council which outlines flood information applicable to the site based on a catchment wide flood modelling analysis. We understand the results within the report were obtained from data within the Dee Why and Curl Curl Lagoons Floodplain Risk Management Study (2005).

The information within the report includes extents of the following:

- Flood Planning Level
- 1 in 100 year Flood Event
- High Risk Flood
- Probable Maximum Flood

The following table outlines flood level information specific to the site:

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Flood Level Information	
Design flood level (1% AEP / 100 yr ARI)	3.7m AHD
Freeboard	0.5m
Flood Planning Level (FPL)	4.2m AHD
Probable Maximum Flood (PMF)	5.7m AHD
Flood Risk Planning Precinct	Medium

Refer to Appendix A for a copy of Council's flooding information report and to Figures 2, 3 and 4 below, depicting the flood information at the site.

As depicted in the figures below, a portion at the lower end of the site is located within the PMF and below the Flood Planning Level.

The levels as determined on the Aerial Laser Survey from Council's analysis match the levels within the detailed survey undertaken for the development. As such we believe the information within the flood information report is accurate for this site.

There are currently no buildings on the existing site that are affected by the 1% AEP event and all proposed buildings will be above the Flood Planning Level of 4.20m AHD. The maximum depth of the 1% AEP event is 0.3m above the final discharge pit to the south-east corner of the site.

The existing demountables at the southern end of the site are determined to be within the Probable Maximum Flood Event (PMF), however the finished floor levels are set above the 5.70m AHD.

The flood information report identifies this site as medium risk as a result of the above information.



Figure 2 – Flood Extents



Figure 3 – Aerial Laser Survey (South-West)



Figure 4 – Aerial Laser Survey (South-East)

Appendix A

Flood Certificate

28 February 2017

Our ref: 2017/056905

S J New
Level 1
19 Foster Street
SURRY HILLS NSW 2010

Dear Sir/Madam

**Re: Flooding Information Report for Property: Por 271/ Playfair Road NORTH
CURL CURL NSW 2099**

I refer to your Flood Information Report application for the subject property and provide the following information in response.

The following table shows the flood level information applicable to the property.

Design flood level (1% AEP / 100year ARI)	3.7m AHD
Freeboard	0.5m
Flood Planning Level (FPL)	4.2m AHD
Probable Maximum Flood (PMF)	5.7m AHD
Flood Risk Planning Precinct	Medium

*AHD (Australian Height Datum)

Attached are three maps indicating the flood extents and ground level spot heights relevant to the property.

The information provided is currently the best available information Council has on flooding for the area and the extents are considered indicative only. This data is taken from the Dee Why and Curl Curl Lagoons Floodplain Risk Management Study (2005).

Council recommends that you obtain a detailed survey of the above property and surrounds to AHD by a registered surveyor to determine any features that may influence the predicted extent or frequency of flooding. It is recommended you compare the flood level to the ground and floor levels to determine the level of risk the property may experience should flooding occur.

DEVELOPMENT

As your property is within the Medium Risk Planning Precinct, and a school is listed as Vulnerable Development, the following development controls will apply:

- The minimum habitable floor level for the site must be set at or above the Probable Maximum Flood Level of 5.7m AHD.
- The development must not reduce flood storage under the FPL of 4.2m AHD.
- All new building works and services shall be designed to withstand the hydraulic forces of a flood up to PMF of 5.7m AHD.

- Hazardous chemicals must not be stored below the Flood Planning Level of 4.2m AHD.

Development approval is dependent on a range of issues, including compliance with all relevant provisions of Northern Beaches Council's WLEP 2011 and DCP. The flood related development controls are detailed in Part E11 of the Warringah DCP.

Please note that compliance with these flood requirements does not guarantee Council will approve a development on this property. A Flood Risk Assessment will be required to be provided with your DA submission. Guidelines for this are enclosed. Further advice should be obtained from a practising qualified civil/structural engineer regarding suitable types of floor and house construction.

Please note that the information contained within this letter is general advice only as a detail survey of the property as well as other information is not available. Council recommends that you engage a suitably experienced consultant to provide site specific flooding advice prior to making any decisions relating to the purchase or development of this property.

Should you require clarification of the above information please contact Council's Natural Environment on 9942 2111.

Yours faithfully

A handwritten signature in blue ink, appearing to read 'V. Tulk'.

Valerie Tulk
Senior Floodplain Management Officer