

## **School Infrastructure NSW**

### **New Primary School in Mulgoa Rise**

## **Soil and Water Assessment**

20-306 / 12 August 2021 / SSDA Submission

# Contents

Contents .....	2
Document control .....	3
1.0 Introduction.....	4
2.0 Site Investigations .....	5
3.0 Subsurface Soil Profile.....	5
4.0 Groundwater Conditions .....	5
5.0 Soil and Groundwater Contamination .....	6
6.0 Impact on Soil and Water.....	7
7.0 Erosion and Sediment Control .....	7
8.0 Salinity and Acid Sulphates.....	8

# Document control

Rev	Date	Revision details	Approved	Verified	Prepared
A	06.05.21	SSDA Submission	KEC	JC	AP
B	10.08.21	Draft SSDA Submission			AP
C	12.08.21	SSDA Submission			AP

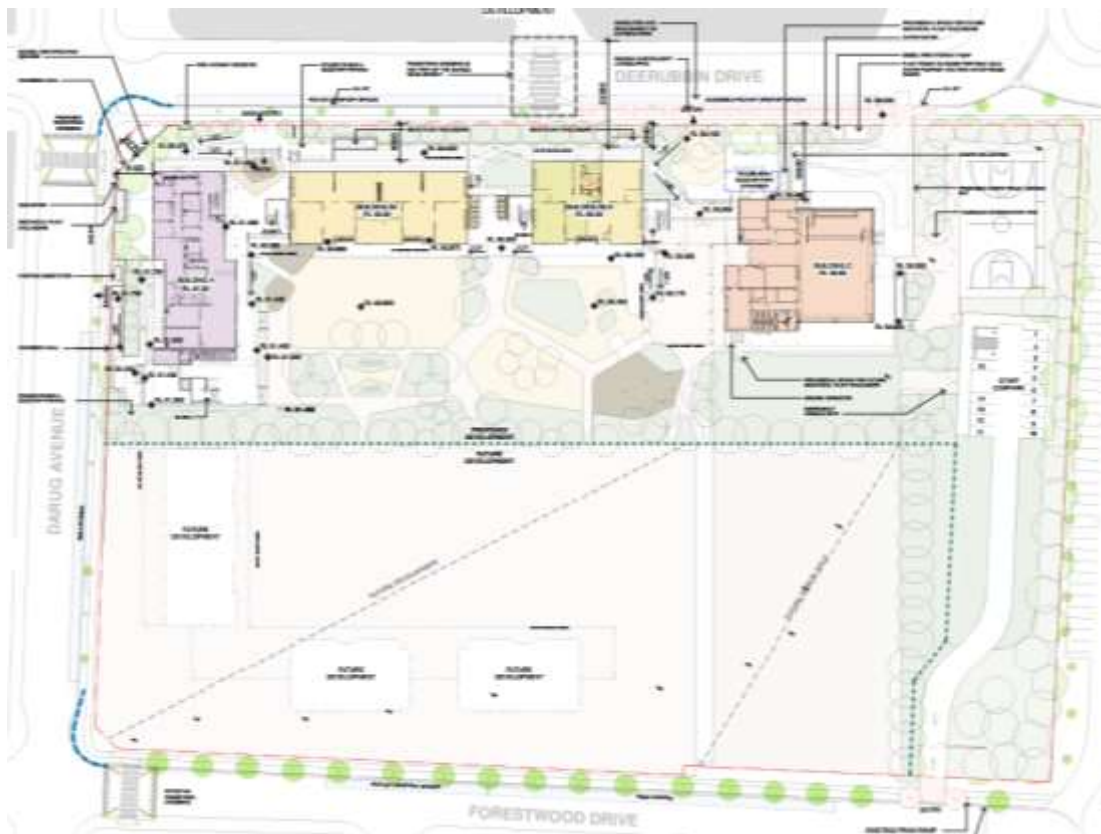
Copyright 2021 © Woolacotts Consulting Engineers | Do not use, copy, or reproduce wholly or in part without written permission

# 1.0 Introduction

The proposed primary school at Mulgoa Rise / Glenmore Park is a new school on a brownfield site, the site is a former quarry that has been filled to the current surface levels.

The new primary school in Mulgoa Rise /Glenmore Park is to be designed and built to significantly improve educational outcomes and address the capacity shortfall across the area for an approximate 414 students initially, with the potential expansion to 1000 as demand grows.

Refer Figure 1 below for the proposed site plan.



*Figure 1 Site Plan*

The purpose of this report is to:

- Assess potential impacts on surface and groundwater, soil, related infrastructure and watercourses.
- Detail measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and fine particles.
- Assess of salinity and acid sulphate soil impacts.

## 2.0 Site Investigations

Soil and water information relating to The Site has been obtained from the following documents:

- JK Geotechnics – *Supplementary Geotechnical Investigation*, Ref: 33177PN2rpt, Dated 16 November 2020
- JK Environments – *Preliminary Site Investigation (PSI) - Contamination*, Ref: E33177PArpt, Dated 3 June 2020
- JK Environments – *Detailed Site Investigation (DSI)*, Ref: E33177Prpt3-DSI, Dated 5 November 2020
- JK Environments – *Addendum to Preliminary and Detailed Site Investigation Reports*, Ref: E33177Plet-ADD, Dated 29 July 2021
- JK Environments – *Sampling, Analysis and Quality Plan (SAQP)*, Ref: E33177Prpt2-SAQP, Dated 6 October 3 June 2020
- JK Environments – *Salinity Assessment and Salinity Management Plan*, Ref: E33177Prpt4-SAL, Dated 5 November 2020

## 3.0 Subsurface Soil Profile

The *Supplementary Geotechnical Investigation* by JK Geotechnics (dated 16 November 2020) indicates that the site was previously a quarry (1986 – 2000) which has been filled to current surface levels.

Generally the fill material is a clayey fill material with gravel inclusions, which is well compacted but there are pockets which are poorly compacted in the in the area proposed for the two-storey home base building B2. Rock was encountered at the base of the fill material at depths varying from 11.2m to 14.5m.

For further information on the soil profile refer to the *Supplementary Geotechnical Investigation* by JK Geotechnics (dated 16 November 2020).

## 4.0 Groundwater Conditions

Groundwater seepage was encountered during auger drilling at depths between 3.8m and 9.0m. On completion of the drilling, standing groundwater was recorded at depths between 1.3m and 5.0m in the boreholes. 24 hours after the drilling, a standing groundwater level of 2.3m deep was recorded.

For further information on the groundwater conditions refer to the *Supplementary Geotechnical Investigation* by JK Geotechnics (dated 16 November 2020).

## 5.0 Soil and Groundwater Contamination

The *Detailed Site Investigation (DSI)* by JK Environments (dated 5 November June 2020) indicates The Site was previously a quarry that was rehabilitated with the importation of material and controlled filling circa 2000.

The DSI did not identify any contamination that would pose a risk to the proposed development as stated in the conclusion of the DSI *“the investigation has not identified contamination that was assessed to pose a risk in the context of the proposed development. Therefore, based on the findings of the investigation, JKE are of the opinion that the site is suitable for the proposed development ... remediation and/or further investigation is not considered to be required based on the information and data collected and evaluated by JKE.”*

For further information on the soil and groundwater contamination refer to the *Detailed Site Investigation (DSI)* by JK Environments (dated 5 November June 2020).

An addendum to the PSI and DSI was undertaken as detailed in the *Addendum to Preliminary and Detailed Site Investigation Reports* by JK Environments (dated 29 July 2021). The results of this addendum are summarised below:

- *“The DSI concluded that the site was suitable for the proposed primary school development. Remediation and/or further investigation was not considered to be required based on the information and data collected and evaluated at that time.”*
- JKE undertook a site inspection after the PSI / DSI were completed which identified a non-friable ACM at the ground surface in the north-eastern / eastern sections of the site. Further work is required to address the unexpected find and reconfirm the site's suitability for the proposed development
- JKE considers that the *“ACM identified at the ground surface during the 2021 inspection is potentially a result of fly-tipping and/or from debris associated with trucks that have utilised the site for parking, subsequent to completion of the DSI”*
- JKE recommends a Supplementary Asbestos Investigation Report be prepared which details the confirms the extent of potential asbestos impact, sample the asbestos material, present resulting of the sampling, along with a discussion / assessment of risk and any recommendations.

## 6.0 Impact on Soil and Water

The proposed development will potentially impact The Site's soil and water during the construction of the building foundations, external pavements, car parks and landscaped areas.

Potential impacts include the erosion of soils and sedimentation getting into watercourses and the management of saline soils / groundwater.

With respect to the erosion of soils and sedimentation getting into watercourses, it is proposed to provide sediment and erosion control measures as detailed in section 7.0.

With respect to the management of saline soils / groundwater, a Salinity Management Plan has been produced as described in Section 8.0.

## 7.0 Erosion and Sediment Control

During construction, erosion and sediment control measures are to be provided in accordance with the requirements of "Managing Urban Stormwater Soils and Construction, 4<sup>th</sup> Edition (Blue Book)". These measures will include silt fences on the low side of the site, silt traps around new and existing stormwater pits and a sedimentation basin.

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.

Refer to the *Stormwater Management Report* prepared by Woolacotts for the Erosion and Sediment Control Plan for The Site.

## 8.0 Salinity and Acid Sulphates

The *Salinity Assessment and Salinity Management Plan* by JK Environments (5 November 2020) indicates the following:

- The majority of the surficial samples from The Site were non-saline
- The subsurface samples were slightly saline to moderately saline
- There was no obvious pattern of increasing salinity with depth or specific areas of increased salinity within The Site
- Laboratory results indicated that the groundwater is saline
- The soil pH and acid sulphate test results indicate that the soils are non-aggressive towards buried concrete and mildly aggressive towards buried steel
- The groundwater pH and chloride results indicate that the groundwater is non-aggressive towards buried steel and concrete

Based on the results of salinity assessment, a Salinity Management Plan (SMP) was prepared as part of the *Salinity Assessment and Salinity Management Plan* by JK Environments (5 November 2020).

The SMP provides recommendations on the following proposed works:

- Earthworks
- Site Drainage, Surface Water and Stormwater Run-off
- Design of Built Structures
- Garden and Landscape Areas
- Footpath and hardstand Areas
- Ongoing Management

For further information on The Site's salinity and acid sulphates, refer to *Salinity Assessment and Salinity Management Plan* by JK Environments (5 November 2020).