

## Memorandum

<b>To</b>	Mardi Christian	SINSW c/o TSA Management	Mardi.Christian@tsamgt.com
<b>From</b>	Lisa Teng	<b>Date</b>	17 Mar 21
<b>Subject</b>	Pendle Hill High School - Groundwater	<b>Project No.</b>	86977.01

Douglas Partners Pty Ltd (DP) was commissioned by School Infrastructure NSW (c/o TSA Management) to provide an assessment of the likely potential impact to groundwater from existing contamination at the proposed development at Pendle Hill High School (the 'PHHS Site'). The proposed development comprises new building works in an area herein referred to as the 'Site' and is classified as a State Significant Development (SSD) (see Drawing 1 attached).

We understand that the proposed development includes the construction of a new three-storey courtyard building on Binalong Road comprising:

- Two new 3 storey wings under a connected roof which will accommodate a library, staff unit, lecture theatre, multimedia and senior learning, administration unit and student amenities;
- External transport infrastructure upgrade works;
- New covered walkways and upgraded landscape; and
- New hardstand areas for bicycle parking.

The aim of this assessment was to undertake a review of the previously carried out investigations and provide comment in regard to the likely potential impact on groundwater from contamination within the Site; with the understanding that the proposed development does not include any basement excavations or dewatering. This assessment has been undertaken in accordance with the requirements of SEPP 55.

DP has previously undertaken a preliminary site (contamination) investigation (PSI) (DP2019)<sup>1</sup> and an updated PSI (Updated PSI) (DP 2020)<sup>2</sup> which included limited soil sampling for the proposed development at the PHHS site. As part of further investigations of the Site, DP undertook a supplementary contamination investigation (DP 2021)<sup>3</sup> to delineate previously identified asbestos within the Site and a salinity assessment (DP 2021a)<sup>4</sup> to assess the potential for saline soils.

<sup>1</sup> DP Report on Preliminary Site Investigation, Pendle Hill High School, Cornock Avenue, Toongabbie dated December 2019 (DP reference: 86977.00.R.001.Rev0)

<sup>2</sup> DP Report on Updated Preliminary Site Investigation with Limited Soil Sampling, Pendle Hill High School, Cornock Avenue, Toongabbie dated March 2020 (DP reference: 86977.00.R.004.Rev1)

<sup>3</sup> DP Report on Supplementary Contamination Assessment, Pendle Hill High School, Cornock Avenue, Toongabbie dated March 2021 (DP reference 86977.01.R.001.Rev0)(DP 2021)

<sup>4</sup> DP Report on Salinity Assessment, Pendle Hill High School, Cornock Avenue, Toongabbie dated March 2021 (DP reference: 86977.01.R.002.Rev0)(DP 2021a)

Relevant information from these reports is summarised below:

- The PHHS site is underlain by residual soils from the Blacktown soil landscape (based on the 1:100 000 Soil Landscape Series Map) which typically consist of medium and high plasticity clays;
- The soils are underlain by Ashfield Shale (based on the 1:100 000 Geological Series Map) typically comprising black to dark grey shale and laminite;
- There were no registered groundwater wells within 500 m of the PHHS site based on a search of the NSW Water digital bore information;
- The nearest surface water receptor is the Pendle Creek which is located approximately 600 m west of the PHHS site. Based on local topography, groundwater would be anticipated to flow westwards from the PHHS site towards the creek;
- Boreholes drilled across the PHHS site as part of the Updated PSI (DP 2020) generally identified subsurface conditions consistent with the above with Fill/Topsoil to depths of between 0.13 m bgl and 1.5 m bgl which were underlain by residual silty clay to depths of between 1.1 m bgl and 3.1 m bgl underlain by shale bedrock. Groundwater was not encountered during the drilling of the boreholes;
- Boreholes drilled within the Site as part of the Supplementary Contamination Assessment (DP 2021) were generally consistent with the above and with Fill / Topsoil identified to depths of between 0.2 m bgl and 2.3 m bgl underlain by residual silty clay to depths of between 0.2 m bgl and 3.0 m bgl underlain by shale bedrock. Groundwater was not encountered during the drilling of the boreholes;
- Soil samples analysed as part of the Updated PSI (DP 2020) were within the site assessment criteria with the exception of asbestos that was detected in one borehole (BH109);
- Soil samples analysed as part of the Supplementary Contamination Assessment (DP 2021) were within the site assessment criteria with the exception of asbestos; and
- Soil samples analysed as part of the Salinity Assessment (DP 2021a) were identified to be non-saline.

Given the nature of asbestos i.e., not subject to leaching combined with the detected concentrations of all other analytes being within site assessment criteria, it is considered unlikely that overlying soils and associated contamination would impact underlying groundwater. Similarly, non-saline soils are unlikely to impact underlying groundwater. Furthermore, it is unlikely that groundwater will be encountered as a part of the development given that no basement levels or dewatering are proposed.

Based on the above, DP does not consider further intrusive groundwater investigations necessary at this stage of the proposed development as impact on groundwater from contamination within the Site is considered unlikely to occur and groundwater is unlikely to be encountered during development. Should the proposed development change and groundwater is then anticipated to be encountered, an assessment of groundwater quality and quantity should be undertaken for site assessment purposes, potential dewatering purposes or if triggered under an unexpected finds protocol.

**Douglas Partners Pty Ltd**



**Lisa Teng**  
Environmental Engineer

Reviewed by



**Tim Wright**  
Principal

## Limitations

Douglas Partners (DP) has prepared this report for this project at Pendle Hill High School in accordance with DP's proposal SYD201350 dated 7 December 2020 and acceptance received from TSA Management Pty Ltd (TSA). The work was carried out under variation DP\_V01 of contract SINSW00145-19. This report is provided for the exclusive use of SINSW C/O TSA Management for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The summary of results provided in the report are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during previous investigations. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

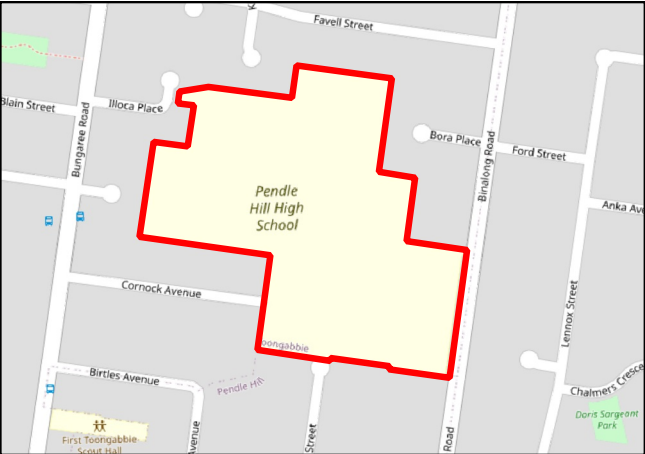
The assessment of atypical safety hazards arising from this advice is restricted to the environmental and groundwater components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Attachments: Drawing 1





LOCALITY MAP

- Notes:
- 1. Basemap from metromap.com.au (dated 07/12/2020).
  - 2. Boundaries shown are approximate only.

Legend

- Approximate School Boundary
- Approximate Stage 2 Site Boundary

