Supplementary Geotechnical Investigation Report

Upgrade to Dundas Public School

85 Kissing Point Road, Dundas, NSW 2117

Prepared for: NSW Department of Education

A201023.0722.03_C_v1f | Date: 11 March 2025

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For and on behalf of
ADE Consulting Group Pty Ltd

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1 Introduction

1.1 General Information

This Supplementary Geotechnical Investigation Report has been prepared to support a Review of Environmental Factors (REF) for the Department of Education (DoE) for the upgrade of the Dundas Public School (DPS) (the activity). The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by State Environmental Planning Policy (Transport and Infrastructure) 2021 (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37 of the T&I SEPP and in consideration of the stakeholder and community participation plan.
The proposed activity is for upgrades to the existing DPS at 85 Kissing Point Road, Dundas NSW 2117 (the site).

ADE previously conducted a Preliminary Geotechnical Desktop Study (PGDS) and an initial phase of geotechnical investigations at the site:

- Preliminary Geotechnical Desktop Study (PGDS) (Ref: A201023.0722.02_v1f; dated 20 October 2023)
- Geotechnical Investigation Report (Initial Issue) (Ref: A201023.0722.03_A_v1f; dated 28 February 2024)

The initial phase of geotechnical investigations was conducted on the 11th of January 2024 and consisted of drilling six boreholes and six hand augers. The investigations assessed the subsurface geotechnical conditions, salinity conditions, ground aggressivity, observation of groundwater levels and excavation conditions, as well as providing geotechnical recommendations including foundation design parameters, site classification to AS2870-2011, and seismic classification and earthquake parameters.

A site plan showing the proposed building footprint and borehole locations is presented in **Appendix I.**

Upon the Department's decision to include an additional building to the western portion of the site with a new water tank for storing rainwater. ADE was provided a proposed site layout plan titled, "proposed future plan - option 1" dated 23rd August 2024 by Fulton Trotter. The purpose of this report is for ADE Consulting Group (ADE) to provide an additional Intrusive Geotechnical Investigation (IGI) report in relation to the proposed activity.

ADE conducted the IGI on 11th October 2024, consisting of the drilling of four boreholes. ADE has assessed the subsurface conditions of the proposed new building as shown on the above layout plan – Option 1, and also provided geotechnical comments and recommendations to inform the design phase. This report presents updates on the inferred subsurface condition, observation of groundwater levels, excavation conditions, geotechnical recommendations of support measures and retaining wall design parameters, foundation design parameters, site classification to AS2870-2011, and seismic classification and earthquake parameters.

This document has been prepared in accordance with the Guidelines for Division 5.1 assessments by the Department of Planning, Housing and Infrastructure (formerly the Department of Planning and Environment), June 2022 and the addendum, Guidelines for Division 5.1 assessments – consideration of

environmental factors for health services facilities and schools, October 2024. This can be accessed here: Development without consent | Planning (nsw.gov.au).

The Department of Education (DoE) is the proponent and determining authority pursuant to Section 5.1 of the Environmental Planning and Assessment Act 1979 (the Act).

The Minister for Education and Early Learning is the landowner.

1.2 REF Checklist

Table 1 below summarise all relevant REF checklist items addressed in this IGI report and provide section references for review.

Table 1: REF Review Checklist – General Requirements

Requirement	Y	N	N/A	Comments
General requirements				
Regulatory requirements Does the REF include: • an acknowledgement of County?	☐	☐	☒	
• details of: ○ the proposed activity?	☒	☐	☐	Refer Section 1.1 "General Information" of this report
○ need for the activity?	☒	☐	☐	Refer Section 1.1 "General Information" of this report
○ alternatives considered, including the do-nothing option?	☐	☐	☒	Not applicable to the activity
○ relevant planning policies, including relevant indicative layout plans, masterplans, strategic plans or Voluntary Planning Agreements apply to the site?	☐	☐	☒	Not applicable to the activity
○ how proposal relates to relevant legislation and policies?	☒	☐	☐	Refer Section 1.1 "General Information" of this report
○ related approvals required?	☐	☐	☒	
○ relevant determining authority (i.e. the NSW Department of Education)	☒	☐	☐	Refer Section 1.1 "General Information" of this report
• a description of the site (including address and lot/DP) and surrounding environment using text and plans/photos including details the environmental features and planning constraints?	☒	☐	☐	Refer Section 2.1 "Site Description" of this report
• a description of land / road reserves associated with any off-site works?	☐	☐	☒	Not applicable to the activity
• a summary of existing approvals and relevant conditions that apply to the site?	☐	☐	☒	Not applicable to the activity
• for existing schools, confirmation that the proposed activity does not contravene a relevant condition of consent?	☒	☐	☐	Refer Section 1.1 "General information" of this report
• an assessment of potential impacts of the proposal?	☐	☐	☒	Not applicable to the activity
• a summary of consultation undertaken, responses received and how responses were considered?	☐	☐	☒	Not applicable to the activity
• a statement certifying that the contents are true and correct?	☒	☐	☐	Refer Section 7 "Limitations" of this report

• a conclusion that the proposal is not likely to significantly affect the environment or threatened species, communities or habitats unless a Species Impact Statement (SIS) (for aquatic biodiversity) or (terrestrial) Biodiversity Development Assessment Report (BDAR) has been prepared?	☐	☐	☒	Not applicable to the activity
• a statement that the proposed activity qualifies as development without consent?	☒	☐	☐	Refer Section 1.1 "General Information" of this report
• a detailed response to the design quality principles set out in the T&I SEPP?	☐	☐	☒	Not applicable to the activity
• a detailed response to the Design for Schools Guide?	☐	☐	☒	Not applicable to the activity
• where relevant, a detailed response to any School Design Review Panel comments?	☐	☐	☒	Not applicable to the activity
• a schedule of mitigation measures that are specific and deliverable?	☐	☐	☒	Not applicable to the activity
Has the REF addressed s171 of the EP&A Reg including the environmental factors set out in the October 2024 Addendum for Consideration of environmental factors for health services facilities and schools and s171A (if the site is located in a regulated water catchment)?	☐	☐	☒	Not applicable to the activity
Has the REF been prepared in accordance with the Part 5 Guidelines, including the October 2024 Addendum for Consideration of environmental factors for health services facilities and schools	☒	☐	☐	Yes
If early engagement has occurred, has the REF summarised the issues raised been summarised and set out how they have been considered?	☐	☐	☒	
Landowner's detail and consent If owned by 'education', does the REF note that the land is owned by the Minister for Education and Early Learning rather than the department?	☒	☐	☐	Refer Section 1.1 "introduction" of this report
Has landowner's consent been obtained or has the landowner been notified of the REF? Note: It is the preference Landowner's consent is to be obtained prior to lodgement. However, where this is not possible and for any public domain or road works on council land, the council must be notified of the proposed works prior to lodgement of the REF.	☐	☐	☒	Refer Section 1.1 "Introduction" of this report.
Terminology Does the REF use appropriate terminology for a REF: • "activity" instead of "development"?	☒	☐	☐	
• "NSW Department of Education" shortened to "the department" instead of "School Infrastructure NSW" or "SINSW"?	☒	☐	☐	
• "Proponent" instead of "Applicant"?	☐	☐	☒	
• "Mitigation measures" instead of "conditions"?	☒	☐	☐	Refer Section "5.9" Mitigation measures
Soil and water				
If the site is mapped as, or has otherwise been identified, as having salinity potential, does the geotechnical report consider impacts from salinity and set out measures to mitigate impacts (i.e. Salinity Management Plan) so that they would not be significant?	☒	☐	☐	Refer to ADE's previous report A201023.0722.03_A_v1f section "5.10" Soil Salinity. The site was determined as non-saline
If the site is mapped as, or has otherwise been	☐	☐	☒	The site is mapped as

identified as having acid sulfate soils (ASS) potential, does the geotechnical report consider impacts from ASS and set out measures to mitigate impacts (i.e. ASS Management Plan) so that they would not be significant?				having no acid sulfate soils potential.
If the site is mapped as being in an area of groundwater vulnerability, does the REF include an Integrated Water Management Plan that assess the potential of the activity to impact groundwater and does it conclude that the activity would not be likely to have significant environmental impacts with or without mitigation measures?	☐	☐	☒	Not applicable to the activity
If the site is mapped as being in an area of landslide risk, does the REF assess the potential of the activity and does it conclude that the activity would not be likely to have significant environmental impacts with or without mitigation measures?	☐	☐	☒	No
Has an Erosion and Sediment Control plan been prepared to inform the REF that includes: • a plan(s) detailing: ○ property boundaries, existing levels of the land in relation to the building, roads and where stormwater surface flows enter and leave the site?	☐	☐	☒	Not applicable to the activity
○ the location of stabilised construction access points?	☐	☐	☒	Not applicable to the activity
○ the location of perimeter sediment/erosion controls?	☐	☐	☒	Not applicable to the activity
○ any ‘no-go’ areas that are not to be disturbed?	☐	☐	☒	Not applicable to the activity
○ location of stockpile areas?	☐	☐	☒	Not applicable to the activity
○ location of proposed temporary and permanent site drainage?	☐	☐	☒	Not applicable to the activity
• specific measures to be implemented to prevent pollution of stormwater off the site?	☐	☐	☒	Not applicable to the activity
Does the REF summarise the proposed controls and incorporate any mitigation measures identified in the above documents?	☐	☐	☒	Not applicable to the activity

1.4 Scope of Work

In summary, the additional geotechnical investigation comprised the following:

- Preparation and approval of a Safety, Health, Environment, and Safe Work Method Statement (SHEWMS) prior to undertaking works
- Prior to commencing the fieldwork, underground services were electromagnetically scanned and identified by an accredited service locator.
- Fieldwork – 4 boreholes identified as BH101 to BH104 were carried out within the proposed development area terminated at 5m depth. All the test locations are marked in **Appendix I** of this report.
- Boreholes were drilled mechanically using an auger attached with a V bit until bedrock was encountered, then a TC bit to borehole completion.
- Standard Penetration Test (SPT) was conducted at 1.5m intervals starting from 0.5m.
- An experienced geotechnical engineer from ADE was present full-time onsite during the fieldwork to set out the borehole locations and direct subcontractors, log the sub-surface profile in accordance with Australian Standard AS1726-2017 and collect soil samples for testing.
- Upon drilling completion, the boreholes were reinstated by using cuttings obtained from the borehole excavation.
- Preparation of the borehole logs and attached in **Appendix II** along with Report Explanation Notes, which describe the investigation techniques adopted and define the logging terms and symbols used
- Selected soil samples were tested for the following laboratory tests:
    - Two samples were tested with Particle Size Distribution (PSD) tests.
    - two samples were tested with Atterberg Limits.
    - One sample was tested with a U50 Shrink Swell.
- Preparation of this geotechnical investigation report for the design phase of the proposed new building.

2 Background

2.1 Site Description

DPS is located at 85 Kissing Point Road, Dundas. The school site is bound by Kissing Point Road to the north and Calder Road to the south. Kenworthy Street is located parallel to the site to the east as is Saint Andrews Street to the west. The site has an area of 1.99 ha and comprises 1 allotment legally known as Lot 3 DP 610. The site currently comprises an existing co-education primary (K-6) public school with 9 permanent buildings, 6 demountable structures (1 demountable includes 2 classrooms), interconnected covered walkways, play areas, on-grade parking, sports court and green spaces with mature trees.
Majority of the buildings are 1 storey with only one 2-storey building being Building A (Admin/staff hub and amenities building). Buildings are clustered to the north of the site, with the southern part comprising of a large play area/informal sports oval and a sports court.

Figure 1 Aerial image of the site, outlined in red (Source: NearMap, taken 30 October 2024)

Proposed Activity Description
The proposed activity involves upgrades to the existing DPS, including the following:

- Creation of 6 new teaching spaces and 2 learning commons in a single-story building
- Installation of covered walkways connecting the new building to the existing school network
- Landscaping and external works around the new building and eastern entry
- Upgrades to site infrastructure and services to support the new building.

The intent of the activity is to increase the number of permanent teaching spaces (PTS) from 9 to 15 and students from 331 to 391.

Figure 2 below show the scope of works for the proposed activity.

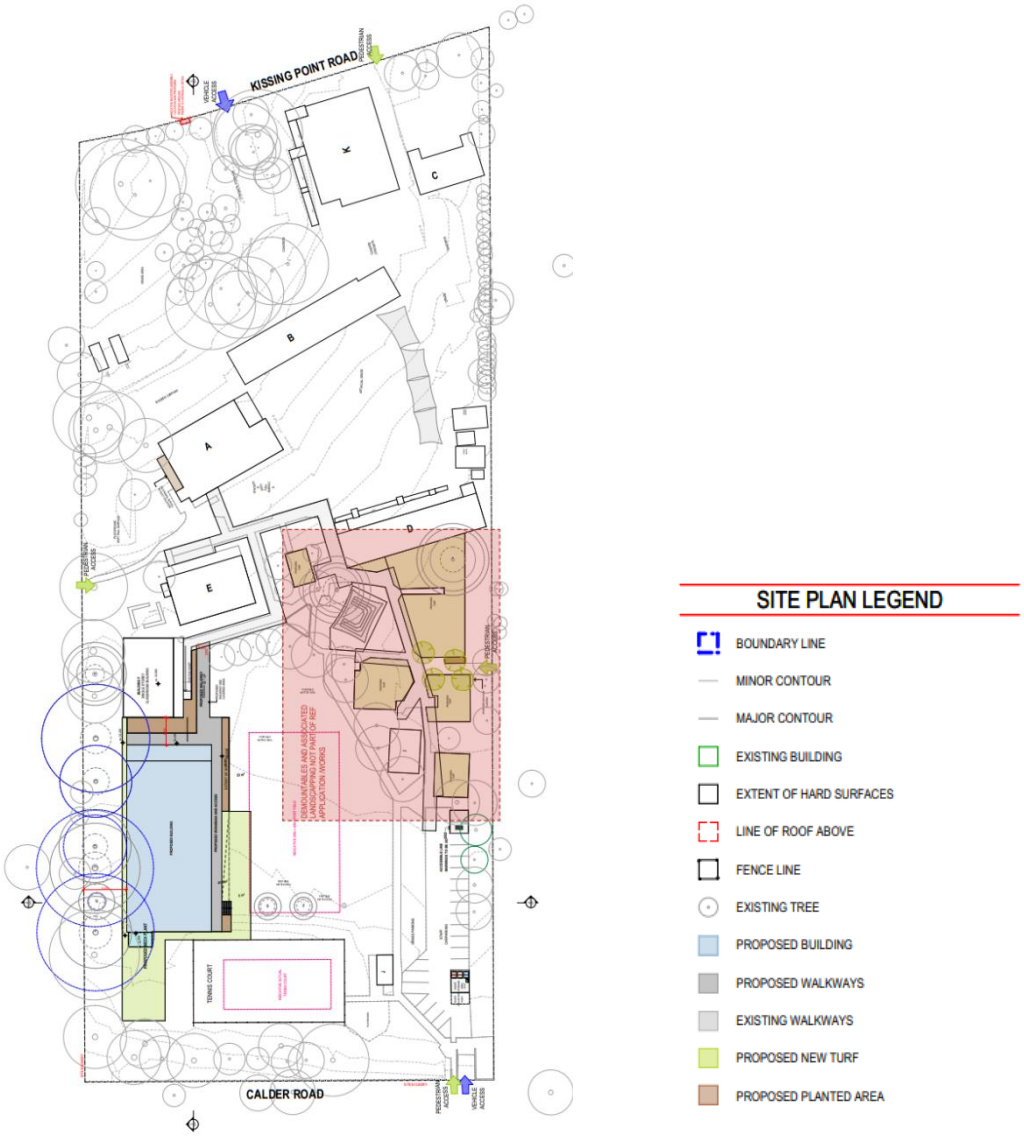


Figure 2: Proposed Scope of Works (Source: Fulton Trotter Architects, Proposed Site Plan (Rev P5))

Figure 3 below shows the proposed building footprint, with the school's current oval on the right. Figure 4 shows more of the school's ovals.

Figure 3: View of the proposed new building footprint looking north

Figure 4: Site photo looking east towards BH104 and the school's basketball courts and oval

2.2 Regional Geology

The site's geology is identified as "**Rsw**" and "**Rwa**" and is referred to as the Wianamatta group of rocks of the Triassic age. "**Rsw**" predominately consists of sandstone, siltstone and shale. Figure 5 below shows an excerpt of the regional geology from Sydney Geological, Sheet 9130, of 1:100000 scale.

The soil profile map identifies the site as part of the '9130 Blacktown' soil landscape, characterised by shallow to moderately deep soils, consisting of red and brown podzolic soils on the crests and upper slopes, and potential surface movement.

Figure 5: Excerpt from Sydney Geological map 9130, Sydney Geological Survey edition 1 (1983)

3 Fieldwork Results

3.1 Subsurface Conditions

A summary of subsurface materials encountered during the investigation is presented in **Table 2** below. Reference should be made to the attached borehole logs in **Appendix II** of this report.

Table 2: Summary of Subsurface Profile.

Unit	Details	Depth (m)			
		BH101	BH102	BH103	BH104
Unit 1	TOPSOIL, Silty SAND, fine to medium grained, brown, trace of gravel, with rootlets and surficial vegetation	0.0 – 0.2	0.0 – 0.2	0.0 – 0.2	0.2 – 0.4
Unit 2	FILL, Clayey/Silty SAND, fine to medium grained, orange-pale brown and pale grey, trace fine gravel	–	–	0.2 – 0.5	–
Unit 3	Sandy/Silty CLAY, low to high plasticity, orange-brown and pale brown, fine to medium grained sand, trace fine ironstone gravel, stiff	0.2 – 0.8	0.2 – 0.8	–	0.4 – 1.4
Unit 5-A	SANDSTONE, medium grained, pale grey and orange-brown, very low strength to medium strength, highly weathered.	0.8 – 3.4	0.8 – 3.3	0.5 – 3.3	1.4 – 3.4
Unit 5-B	SILTSTONE, pale grey, very low to medium strength, highly to moderately weathered.	3.4 – 4.5	–	–	3.4 – 4.0
Unit 6	SHALE, grey-brown, low to medium strength, highly to moderately weathered	4.5 – 5.0	3.3 – 5.0	3.3 – 5.0	4.0 – 5.0

3.2 Groundwater

No groundwater was not encountered in any of the boreholes during drilling. However, groundwater levels may vary due to rainfall, seasonal changes, or damage to underground services. Groundwater tables can also be at a deeper depth, and groundwater seepage can occur at bedrock defects

4 Laboratory Testing

From the investigation, the ground profile was determined to be composed of either a silty sand topsoil or fill underlain by clayey soils with sandy CLAY and Silty CLAY encountered in the investigation area. Particle size distribution (PSD) tests, Atterberg Limits tests and shrink swell tests were undertaken on selected soil samples recovered from the boreholes by ADE's NATA-accredited laboratory to assess the soil characteristics. A summary of the laboratory test results is presented in **Table 3** to **Table 5** below. The laboratory test reports are enclosed in **Appendix III**.

Table 3: Results of Particle Size Distribution Test

Test Location	Depth (m bgl)	Material Description	Gravel (%)	Sand (%)	Fines (%)
BH02	0.5-1.0	Sandy CLAY	7	42	51
BH04	0.5-1.0	Silty CLAY	9	19	72

Table 4: Results of Atterberg Limits Tests

Test Location	Depth (m bgl)	Material Description	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	Linear Shrinkage (%)
BH02	0.5-1.0	Sandy CLAY	54	21	33	14.5
BH04	0.5-1.0	Silty CLAY	54	23	31	14.5

Table 5: Summary of Shrink Swell Results

Test Location	Depth (m bgl)	Material Description	Shrinkage Moisture Content (%)	Shrinkage	Swell (%)	Shrink Swell Index Iss (%)
BH04	0.5-0.8	Silty Clay	28.0	4.7	1.1	2.9

5 Comments and Recommendations

5.1 General

The ground profile at the proposed building comprised topsoil and fill (Unit 1 and 2) overlying residual clays (Unit 3) and bedrock (Unit 5A, B and 6). It is recommended that Units 1 and 2 within the footprint of the proposed activity be removed, including vegetation and grubbing out of tree roots, if present within the activity area.

Unit 1 (topsoil) within the bulk earthworks area can be stripped, stockpiled and considered for reuse in accordance with Australia Standard AS3798-2007 Earthworks. Reusing of the site-won materials should be contamination-free. The excavated areas can be backfilled with suitably engineered fill layers to the designed subgrade level, if required.

Shallow foundations, such as on-grade pad or raft footings or pile foundations to be founded in Units 5A, 5B and 6 materials, will likely be feasible due to shallow rock levels, subject to further geotechnical assessment of the design loadings of the proposed building.

Soil and rock design parameters inferred from the geotechnical investigation and the laboratory test results have been provided below in Tables 7, 8 and 9.

5.2 Engineered Fill

Placement and compaction of engineered fill material for supporting structure foundations shall comply with the following requirements, but not limited to:

- Engineered fill material shall be placed in layers of not more than 200mm loose thickness for compaction.
- Compaction of the engineered fill shall achieve a Standard Maximum Dry Density (SMDD) of a minimum 98% relative density and moisture condition to ±2% of the Standard Optimum Moisture Content (SOMC)
- Earthworks should be carried out under Level 1 Geotechnical Supervision in accordance with AS3798-2007 “Guidelines on Earthworks for Commercial and Residential Developments”.

5.3 Foundations

5.3.1 Design Parameters

The geotechnical design parameters for soil and rock are provided in **Table 6, 7 and 8.**

Table 6: Recommendable Geotechnical Retaining Wall Design Parameters

Subsurface Materials	Unit Weight y (kN/m^3)	Effective Cohesion c' (kPa)	Friction Angle *f* (°)	Elasticity Modulus E (MPa)	Poisson Ratio v'
Units 1 and 2	-	-		-	-
Unit 3	19	50	5	20	20
Unit 5-A, 5-B	21	-	30	32	100
Unit 6	22	-	100	35	500

Table 7: Recommendable Earth Pressure Coefficients

Subsurface Materials	At-Rest Earth Pressure (K_o)	Active Earth Pressure (K_a)	Passive Earth Pressure (K_P)
Units 1 and 2	-	-	-
Unit 3	0.66	0.49	2.04

5.4 Groundwater

No groundwater seepage was observed during the additional geotechnical investigations presented in this report.

5.5 Site Classification

Based on the further investigation carried out at the site, the existing topsoil and fill extends down to 0.5m bgl. Based on the shrink swell testing performed at the site and in accordance with Australian Standard AS 2870-2011 "Residential slabs and footings" the site can be classified as "Class M", subject to the removal of Units 1, 2 materials, should the proposed foundation be found on Unit 3. The "Class M" is described as "Moderately reactive clay or silt sites, which may experience moderate ground movement from moisture changes".

ADE has calculated the characteristic surface movement (ys) using the shrink-swell index by AS2870 2011 clause 2.3. The calculated ys was 35mm indicating "Class M". This indicated the site would likely be a moderately reactive clay or silt site, which may experience moderate ground movement from moisture changes (AS2870 2011).

Due to shallow bedrock being encountered across the proposed building, If Unit 1,2 and 3 are removed with the foundation being founded on bedrock (Unit 5A, 5B or 6), the site can be classified as Class A as per Clause 2.5.1 of AS2870-2011.

5.6 Foundations

Considering the existing extremely weathered bedrock stratum located at shallow depths, shallow foundation systems such as pad and/or strip foundation systems sitting on or a series of piled foundations (bored piles) for larger structures founding in Units 5A, 5B and 6 would likely be feasible. A summary of geotechnical design parameters for shallow foundation design inferred from the encountered subsurface conditions is presented in **Table 8**.

Table 8: Summary of Geotechnical Foundation Design Parameters

Subsurface Materials	Ultimate End Bearing (kPa)	Serviceability End Bearing (kPa)	Ultimate shaft adhesion (kPa)	Elastic Modulus, E' (MPa)
Units 1 and 2	–	–	–	–
Unit 3	240	80	-	10
Unit 5A and 5B (Class V)	3,000	1,000	150	50
Unit 6 (Class IV)	3,000	1,000	150	100

Note: Assumes a minimum embedment depth of at least 0.5 m into the relevant bearing stratum.

In addition, foundation settlement analysis with respect to the localised subgrade conditions shall be carried out to reduce the risk of potential adverse impact to the proposed building due to excessive ground settlement or differential settlement.

5.7 Earthquake Classification

The bedrock at the site is considerably shallow, assuming structures will be founded on Unit 5 or Unit 6. Then the site can be classified as "Class Ce" (Shallow Soil Site) based on the depth of natural soils to bedrock between 0.8m to 1.4m in accordance with AS1170.4 – Structural design Actions - Part 4: Earthquake Actions in Australia for the design and construction of the proposed foundation system. The Hazard Factor (Z) is considered to be 0.08 based on the site location.

5.8 Cumulative Impact Assessment

We refer to the results of the limited scope of geotechnical investigations undertaken at this school site by ADE. No indication of potential acid sulfate soil or high salinity subsurface ground conditions was observed at the time of the investigation fieldwork.

The proposed activity will likely be supported by typical shallow foundations, bored pile foundations or a combination of both. Construction of these foundation types is unlikely to generate significant noise and

vibration, subject to the construction methodology and machinery to be nominated by future construction contractors.

The proposed work area is within the well-developed school property. From a geotechnical perspective, we do not anticipate significant social or visual impact or adverse effects on the existing biodiversity.

5.9 Mitigation Measures

The potential project environmental risks and recommended mitigation measures are summarised in table 9 below:

Table 9: Summary of Mitigation Measures

Mitigation Name	Aspect/Section	Mitigation Measure	Reason for Mitigation Measure
Noise and Vibration Monitoring	Noise Monitoring, Vibration, Operational Noise	Shallow foundations and bored pile foundations are unlikely to generate significant noise and vibration	Noise and vibration assessment is outside the scope of the IGI, however use of these techniques can reduce noise and vibration impact on surrounding areas.
Groundwater Management	Groundwater	Encountering groundwater will depend on the completion of the detailed design and foundation type proposed for the building structures. If shallow foundations are used, groundwater will unlikely be encountered. If deep foundations such as piles are used, groundwater will likely be encountered during piling excavation. Foundations and piles must be sufficiently dewatered to prevent groundwater infiltration and reduce risk of slope instability. A Groundwater Management Plan (GMP) is recommended to be prepared and implemented during the construction phase (outside the scope of the IGI).	Reduce risk of slope instability, prevent groundwater infiltration to excavation or piles. Identify procedure for disposal of water.
Settlement analysis	Structural Analysis	After selection of the foundation system, it is recommended to carry out a settlement analysis to confirm the total and differential settlements are within the tolerance.	Analysis to be carried out to determine if total and differential settlements are within the design tolerance
Removal of soft and unsuitable soils	Earthworks	All loose/soft soil within the footprint of proposed structures to be removed, including grubbing out of tree roots, if present. These layers may be backfilled with suitably engineered fill layers to the designed subgrade level. Any fill unsuitable for re-use, deleterious/surplus material (if present) such as timber, concrete,	Must be carried out in accordance with AS3798-2007 "Guidelines on Earthworks for Commercial and Residential Developments"

		rubble, should be identified and disposed off-site.	
Foundation validation	Earthworks	Validation of the foundation should be completed by an experienced geotechnical engineer	Identify locations of soft or unsuitable material and remediate prior to backfilling and construction of foundations
Site Classification	Structural Analysis	Determination of the shrink-swell potential in the residual clays present at the site and a site classification for site foundations	Reduce risk of foundation and structural cracking present within the structure during repeated wet, dry soil conditions

6 References

- Clark N.R. and Jones D.C. (1991) Penrith 1:100 000 Geological Sheet 9030, 1st edition. Geological Survey of New South Wales, Sydney
- Australian Standard – AS1726-1993 “Geotechnical Site Investigation”.
- Australian Standard – AS 1170.4-2007 “Structural Design Actions – Part 4: Earthquake actions in Australia”.
- Australian Standard – AS 2870-2011 “Residential slabs and footings”.
- Australian Standard – AS 2159-2009 “Piling - Design and installation”.
- Pells, P.J.N, Mostyn, E and Walker, B F – Foundations on Sandstone and Shale in the Sydney Region, Australian Geomechanics Journal, Dec 1998.
- Pells, P.J.N, Douglas D.J, Rodway, B, Thorne C, McManon B.K – Design Loadings for Foundations on Shale and Sandstone in the Sydney Region. Australian Geomechanics Journal, 1978Guide to Residential Slabs and Footings in Saline Environments CCAA T56-2005
- Department of Infrastructure, Planning and Natural Resources “Salinity Potential in Western Sydney 2002”.
- Site Investigation for Urban Salinity, Department of Land and Water Conservation 2002.

7 Limitations

This report has been prepared for use by the Client who has commissioned the works in accordance with the project brief only and has been based on information provided by the Client. The advice herein relates only to this project and all results, conclusions and recommendations made should be reviewed by a competent and experienced person with experience in geotechnical investigations, before being used for any other purpose.

ADE Consulting Group Pty Ltd (ADE) accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced or amended in any away without prior approval by the client or ADE and should not be relied upon by any other party, who should make their own independent inquiries.

This report does not provide a complete assessment of the geotechnical status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site (e.g., conditions exposed at the site during earthworks varying significantly with the results within this report), ADE reserves the right to review the report in the context of the additional information.

ADE's professional opinions are based upon its professional judgment, experience, training, and results from analytical data. In some cases, further testing and analysis may be required, thus producing different results and/or opinions. ADE has limited investigation to the scope agreed upon with its client.

This report has been written with the intent of providing information on the site subsurface to the client for design and construction purposes. Subsurface conditions relevant to the works undertaken by the client should be assessed by a competent contractor who can make their interpretation of the data represented within this report.

Subsurface conditions will always vary within a worksite and the extremes of these variations cannot be defined by exhaustive investigations, and as such, the measurements and values obtained within this result may not be representative of these extremes.

Appendix I – Borehole Location Plan

Legend

- Test pit locations
- Borehole locations
- Investigation area
- Footprint of proposed school building
- Dundas Public School - Boundary

0 5 m 10 m

ADE CONSULTING GROUP

Produced by **Datanest.earth**

Title: Site Features and Sampling Location		
Client: Schools Infrastructure NSW		Size: A3
Project: SINSW Dundas Public School	Drawn: KA	Figure No.: 2
Date: 30-10-2024	Checked: SG	
Proj No: A101023.0722 (Dundas)	Scale: 1:550	Version: V1

Appendix II – Borehole Logs

ADECONSULTINGGROUP
SOLUTIONS THROUGH INNOVATION

EXPLANATORY NOTES

Soil and rock descriptions on the logs are generally in accordance with the recommendations of AS1726-2017 Geotechnical Site Investigation.

The order in which descriptions are provided on the logs is as follows:

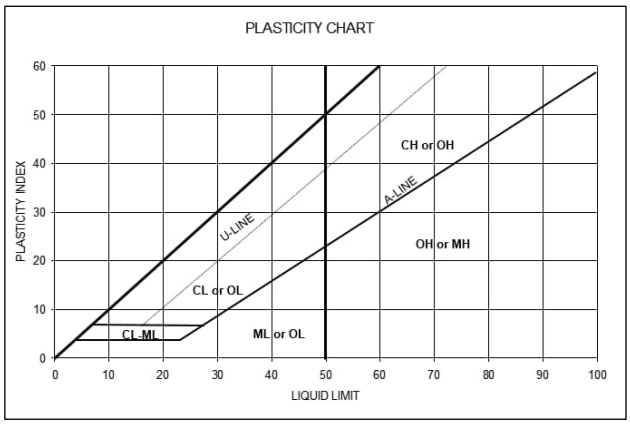
1. SOIL NAME AND GROUP SYMBOLS

Major Divisions		Symbol	Description
COARSE GRAINED SOILS More than 65% of soil excluding oversized fraction is greater than 0.075mm	**GRAVEL** More than 50% of coarse fraction is >2.36mm	GW	Well-graded gravels, gravel-sand mixtures, wide range in grain size and substantial amounts of all intermediate sizes, little or no fines
		GP	Poorly graded gravels, gravel-sand mixtures, predominantly one size or range of sizes with some intermediate sizes missing, little or no fines
		GM	With appreciable amount of non-plastic fines, zero to medium dry strength (gravel-sand-silt mixtures)
		GC	With appreciable amount of plastic fines, medium to high dry strength (gravel-sand-clay mixtures)
	SAND More than 50% of coarse fraction is <2.36mm	SW	Wide range in grain size and substantial amounts of all intermediate sizes, not enough fines to bind coarse grains, no dry strength (Well graded sands, gravelly sands, little or no fines)
		SP	Predominantly one size or range of sizes with some intermediate sizes missing, not enough fines to bind coarse grains, no dry strength (Poorly graded sands and gravelly sands; little or no fines, uniform sands)
		SM	With appreciable amount of non-plastic fines, zero to medium dry strength (silty sands, sand-silt mixtures)
		SC	With appreciable amount of plastic fines, medium to high dry strength (clayey sands, sand-clay mixtures)
FINE GRAINED SOILS More than 35% of soil excluding oversized fraction is less than 0.075mm	Liquid Limit <50%	ML	Inorganic silts of low plasticity (very fine sands, rock flour, sandy clays, silty clays)
		CL, CI	Inorganic clays of low to medium plasticity (gravelly clays, sandy clays, silty clays)
		OL	Organic silts and organic silty clays of low plasticity
	Liquid Limit >50%	MH	Inorganic silts of high plasticity
		CH	Inorganic clays of high plasticity
		OH	Organic clays of medium to high plasticity
	Highly organic soil	PT	Peat muck and other highly organic soils

2. PARTICLE SIZE CHARACTERISTICS

Fraction	Components	Sub Division	Size (mm)
	Boulders		>200
	Cobbles		63 - 200
Coarse grained soil	Gravel	Coarse	19 - 63
		Medium	6.7 - 19
		Fine	2.36 - 6.7
	Sand	Coarse	0.6 - 2.36
		Medium	0.21 - 0.6
		Fine	0.075 - 0.21
Fine grained soil	Silt		0.002 - 0.075
	Clay		<0.002

3. PLASTICITY PROPERTIES



4. MINOR COMPONENTS

Coarse Grained Soils		Fine Grained Soils	
% Fines	Modifier	% Coarse	Modifier
<5	Omit or use 'trace'	<15	Omit or use 'trace'
5 - 12	Describe as 'with clay/silt' as applicable	15 - 30	Describe as 'with sand/gravel' as applicable
>12	Prefix soil as 'silty/clayey' as applicable	>30	Prefix soil as 'sandy/gravelly' as applicable

5. MOISTURE CONDITION

Field Identification			
Symbol	**Cohesive soils**	**Symbol**	**Granular soils**
w<PL	Hard and friable – Moisture Content of soils is less than the plastic limit	D	No Cohesion, dry to the touch and free running
w=PL	Feels cool, darkened in colour, can be moulded – Moisture Content is equal to plastic limit	M	Feels cool, darkened in colour, no visible water, tends to cohere
w>PL	Feels cool, darkened in colour, usually soft – Moisture Content is greater than plastic limit	W	Feels cool, darkened in colour, tend to cohere, and visible free water. Usually from below water table

Moisture content of cohesive soils shall be described in relation to plastic limit (PL) for the soils with dry of PL (w<PL); near PL (w=PL); and wet of PL (w>PL). Moisture content of non-cohesive (granular) soils shall be described as dry (D), moist (M), wet (w)

6. DENSITY

Term	Very Loose	Loose	Medium Dense	Dense	Very Dense
Symbol	VL	L	MD	D	VD
SPT (N)	0 - 4	4 - 10	10 - 30	30 - 50	>50
DCP	0 - 1	1 - 3	3 - 8	8 - 15	>15
Density Index (%)	<15	15 - 35	35 - 65	65 - 85	>85

7. CONSISTENCY

Term	Very Soft	Soft	Firm	Stiff	Very Stiff	Hard
Symbol	VS	S	F	St	Vst	H
SPT (N)	0 - 2	2 - 4	4 - 8	8 - 15	15 - 30	>30
DCP	0 - 1	1 - 2	2 - 3	3 - 7	7 - 12	>12
Undrained Shear Strength (kPa)	<12	12 - 25	25 - 50	50 - 100	100 - 200	>200

ADECONSULTINGGROUP
SOLUTIONS THROUGH INNOVATION

ROCK DESCRIPTION - EXPLANATORY NOTES

1. STRENGTH

Term	Log Symbol	Point Load Index IS_{50} (MPa)	Field Guide
Very Low	VL	0.03 - 0.1	Material crumbles under firm blows with sharp end of pick; can be pealed with a knife; too hard to cut a triaxial sample by hand. SPT will refuse. Pieces up to 3 cm thick can be broken by finger pressure. Sandstone is 'sugary' and friable
Low	L	0.1 - 0.3	Easily scored with a knife; indentations 1 mm to 3 mm show in the specimen with firm blows of the pick point; has dull sound under hammer. A piece of core 150 m long x 40 mm Φ may be broken by hand. Sharp edges of core may be friable and break during handling
Medium	M	0.3 - 1	Readily scored with a knife; piece of core 150 mm long x 50mm Φ can be broken by hand with difficulty
High	H	1 - 3	Can be slightly scratched with a knife. A piece of core 150 mm long x 50 mm Φ cannot be broken by unaided hands but can be broken with a single blow, rock rings under hammer
Very High	VH	3 - 10	Cannot scratch with a knife. Hand specimen breaks with pick after more than one blow, rock rings under hammer
Extremely High	EH	>10	Specimen requires many blows with geo-pick to break through intact material, rock rings under hammer

2. WEATHERING

Classification	Symbol	Description
Residual Soil	RS	Soil derived from the weathering of rock; the mass structure and substance fabric are no longer evident; the soil has not been significantly transported.
Extremely Weathered	XW	Rock is weathered to such an extent that it has 'soil' properties, that is, it either disintegrates or can be remoulded, in water. Fabric of original rock still visible.
Distinctly Weathered	HW	Rock strength usually changed by weathering. The rock may be highly discoloured, usually be iron staining. Porosity may be increased by leaching or may be decreased due to deposition of weathering products in pores. In some environments it is convenient to subdivide into Highly Weathered (HW) and Moderately Weathered (MW), with the degree of alteration typically less for MW.
	MW	
Slightly Weathered	SW	Rock is partially discoloured with staining along joints but shows little or no change of strength from fresh rock.
Fresh Rock	FR	Rock shows no sign of decomposition or staining.

3. COMMON DEFECTS IN ROCK MASS

Type	Symbol	Description
Parting	Pt	A surface or crack across which the rock has little or no tensile strength. Parallel or sub-parallel to layering. May be open or closed.
Joint	Jt	A surface or crack with no apparent shear displacement and across which the rock has little or no tensile strength. May be open or closed.
Shear Zone	Sz	Zone of rock material with roughly parallel near planar, curved or undulating boundaries cut by closely spaced joints, shear surface or other defects. Some of the defects are usually curved and intersect to divide the mass into lenticular or wedge-shaped blocks.
Clay Seam	Cs	Seam of soil material with roughly parallel almost planar boundaries, composed of clay.
Crushed Seam Zone	Cz	Seam of material with roughly parallel almost planar boundaries, composed of disorientated, usually angular fragment of the host rock, which may be more weathered than the host rock.
Infilled Seam	Se	Seam of soil material with distinct roughly parallel planar boundaries formed by the migration of soil into an open cavity or joint and must be defined by colour and USC symbols. Infilled seams less than 1 mm thick may be described as a veneer or coating on a joint surface.
Extremely Weathered Seam / Zone	Ewz	Seam of soil material, often with gradational boundaries. Formed by weathering of the rock material in place.

4. DEFECTS SHAPES AND CHARACTERISTICS

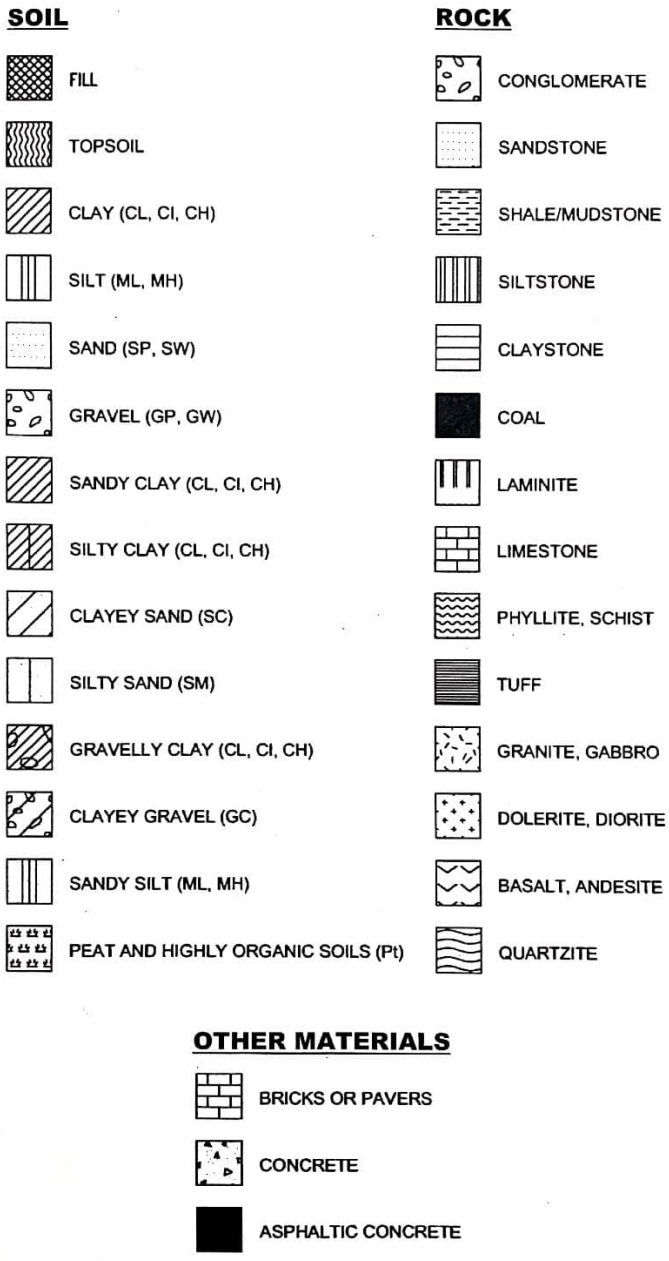
Characteristics	Description
Thickness	Measured in mm normal to the plane of the defect (mm.t).
Inclination	Measured in an exposure as a dip and strike or dip and dip direction. In core measured as an angle from a plane normal to the core axis.
Surface Shape	Described defect surface shape as either: - Planar (Pl) – defect forms a continuous plane without variation in orientation - Curved (Cu) – defect has a gradual change in orientation - Undulating (Un) – a defect has wavy surface - Stepped (St) – a defect has one or more well defined steps. - Irregular (Ir) – a defect with many sharp changes of orientation
Surface Roughness	A description of the defect plane described as: - Rough (Ro)– many small surface irregularities. - Smooth (Sm) – smooth to touch. Few or no surface irregularities. - Polished (Po) – shiny or sheen smooth surface inconsistent with parent rock - Slickensided (Sl) – Grooved or striated surface, usually polished.
Coating	Described defect coating as either: - Clean (Cl) – no visible coating - Stained (St) – no visible coating but surfaces are discoloured - Veneer (Ve) – a visible coating soil or mineral substance, but usually unable to be measured (usually <1 mm), may be called patchy veneer. - Coating (Co) – a visible coating of soil or mineral up to 1mm thick. Thicker soil materials shall be described using appropriate defect terms (e.g. in-filled seam). Thicker rock strength material shall be described as a vein.
Spacing	Measurement of the distance between defects of the same set.

LOG SYMBOLS AND ABREVIATIONS

1. DRILLING AND EXCAVATION METHODS

HA	Hand Auger	**RAB**	Rotary Air Blast	**NMLC**	Diamound Core: 52mm
DT	Diatube Coring	**RC**	Reverse Circulation	**HQ**	Diamound Core: 63mm
NDD	Non-destructive Digging	**PT**	Push Tube	**HMLC**	Diamound Core: 63mm
AD	Auger Driling (ADV: V-Bit; ADT: TC-Bit)	**CT**	Cable Tool Rig	**BH**	Tractor Mounted Backhoe
ADH	Hollow Auger	**JET**	Jetting	**EX**	Tracked Hydraulic Excavator
RD	Rotary blade or drag bit	**WB**	Washbore or Bailer	**EE**	Existing Excavation
RT	Rotary Tricone bit	**NQ**	Diamound Core: 47mm	**HAND**	Excavated by Hand Methods

2. GRAPHIC SYMBOL LEGENDS FOR SOIL AND ROCK



NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH101

FILE / JOB NO : A201023.0722.01
SHEET : 1 OF 1

CLIENT : School Infrustructure NSW PROJECT : Dundas Public School
LOCATION : 85 Kissing Point Rd, Dundas NSW 2117

POSITION : E: 318201.0, N: 6257760.0 () SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Ute Mounted CONTRACTOR : Fico Group DRILLER : Sean

DATE STARTED : 11/10/2024 DATE COMPLETED : 11/10/2024 DATE LOGGED : 11/10/2024 LOGGED BY : CH CHECKED BY :

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
AD/V		E	Not Encountered	SPT 6,8,9 N=17	0.0			<TOPSOIL> Silty SAND: fine to medium grained, dark brown, trace rootlets.			TOPSOIL
					0.20m						
					0.5		CL-Cl	Sandy CLAY: low to medium plasticity, orange-brown, fine to medium grained.	w<PL	St to VSt	RESIDUAL SOIL
				0.95m	0.80m						
AD/T					1.0			SANDSTONE: fine to medium grained, brown yellow, extremely weathered, very low strength, with iron indurated bands.			
					1.30m						
		H		SPT 13/50mm HB 1.55m	1.5			SANDSTONE: fine to medum grained, pale grey, orange-brown, low strength with iron indurated bands.			ROCK
					2.0						
					2.5			@2.4 Becoming low to medium strength.		H	
					3.0						
		H			3.40m						
					3.5			SILTSTONE: pale orange-grey, highly to moderately weathered medium to high strength.			
					4.0						
					4.50m						
					4.5			SHALE: grey, medium strength, moderately weathered.			
					5.00m						
					5.0			Hole Terminated at 5.00 m Target depth Reached			
					5.5						
					6.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH102

FILE / JOB NO : A201023.0722.01
SHEET : 1 OF 1

CLIENT : School Infrustructure NSW PROJECT : Dundas Public School
LOCATION : 85 Kissing Point Rd, Dundas NSW 2117

POSITION : E: 318195.0, N: 6257750.0 () SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Ute Mounted CONTRACTOR : Fico Group DRILLER : Sean

DATE STARTED : 11/10/2024 DATE COMPLETED : 11/10/2024 DATE LOGGED : 11/10/2024 LOGGED BY : CH CHECKED BY :

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
AD/V		E	Not Encountered	SPT 4,15,23 N=38	0.0			<TOPSOIL> Silty SAND: fine to medium grained, brown, rootlets.			TOPSOIL
				0.95m	0.20m						
					0.5		CL-Cl	Sandy CLAY: low to medium plasticity, orange-brown, fine to medium grained.	w<PL	St - VSt	RESIDUAL SOIL
					0.80m						
AD/T		H			1.0			SANDSTONE: fine to medium grained, pale grey, orange-brown, very low strength, with extremely weathered clay bands			ROCK
					1.5						
					2.0						
					2.5			@2.3m Becoming low to medium strength		H	
					3.0						
		F			3.40m						
					3.5			SHALE: dark grey, brown, medium to high strength, moderately weathered.			
					4.0						
					4.5						
					5.00m						
					5.0			Hole Terminated at 5.00 m Target depth Reached			
					5.5						
					6.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH103

FILE / JOB NO : A201023.0722.01
SHEET : 1 OF 1

CLIENT : School Infrustructure NSW PROJECT : Dundas Public School
LOCATION : 85 Kissing Point Rd, Dundas NSW 2117

POSITION : E: 318190.0, N: 6257725.0 () SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Ute Mounted CONTRACTOR : Fico Group DRILLER : Sean

DATE STARTED : 11/10/2024 DATE COMPLETED : 11/10/2024 DATE LOGGED : 11/10/2024 LOGGED BY : CH CHECKED BY :

DRILLING						MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
AD/V		E			0.0			<TOPSOIL> Silty SAND: fine to medium grained, black, trace rootlets.			TOPSOIL
					0.20m						
							SM	Silty SAND: fine to medium grained, yellow.	M	L to MD	RESIDUAL SOIL
					0.50m						
AD/T		H	Not Encountered	SPT 26 HB 0.65m	0.5			SANDSTONE: fine to medium grained, orange-brown, low strength, with iron indurated bands.			ROCK
					1.0						
					1.5			@1.6m Becoming pale grey, red-brown, low to medium strength.			
					2.0						
					2.50m						
		H			2.5			SANDSTONE: fine to medium grained, yellow-brown, low to medium strength, highly weathered.		H	
					3.0						
					3.30m						
					3.5			SHALE: grey, low to medium strength, moderately weathered.			
		H			4.0						
					4.5						
					5.00m						
					5.0			Hole Terminated at 5.00 m Target depth Reached			
					5.5						
					6.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

NON-CORE DRILL HOLE - GEOLOGICAL LOG

HOLE NO : BH104

FILE / JOB NO : A201023.0722.01
SHEET : 1 OF 1

CLIENT : School Infrustructure NSW PROJECT : Dundas Public School
LOCATION : 85 Kissing Point Rd, Dundas NSW 2117

POSITION : E: 318205.0, N: 6257730.0 () SURFACE ELEVATION : ANGLE FROM HORIZONTAL : 90°

RIG TYPE : Drill Rig MOUNTING : Ute Mounted CONTRACTOR : Fico Group DRILLER : Sean

DATE STARTED : 11/10/2024 DATE COMPLETED : 11/10/2024 DATE LOGGED : 11/10/2024 LOGGED BY : CH CHECKED BY :

DRILLING					MATERIAL					
PROGRESS: DRILLING & CASING	PROGRESS: WATER	DRILLING PENETRATION	GROUND WATER LEVELS	SAMPLES & FIELD TESTS	DEPTH (m) RL (m AHD)	GRAPHIC LOG	GROUP SYMBOL	MATERIAL DESCRIPTION Soil Type, Colour, Plasticity or Particle Characteristic Secondary and Minor Components	MOISTURE CONDITION	CONSISTENCY RELATIVE DENSITY	STRUCTURE & Other Observations
					0.0			<TOPSOIL> Clayey SILT, black, trace.			TOPSOIL
								0.20m			
								<FILL> Silty SAND: fine grained, yellow-brown.			FILL
				0.40m				0.40m			
AD/V		E	Not Encountered	U 0.68m	0.5		CI-CH	Silty CLAY: medium to high plasticity, orange-brown.			RESIDUAL SOIL
								0.90m			
				SPT 8,9,15 N=24	1.0		CL-CI	Sandy CLAY: low to medium plasticity, orange-brown mottled red-brown, trace iron indurated bands.	w<PL	VSt	
				1.35m				1.40m			
AD/T		H			1.5			SANDSTONE: fine to medium grained, pale grey, red-brown, very low to low strength, with iron indurated bands.			ROCK
					2.0			@2.2 With clay bands.			
					2.5						
					3.0			3.00m SANDSTONE: fine to medium grained, yellow-brown, medium strength.		H	
								3.40m			
					3.5			SILTSTONE: pale grey, very low to low strength, highly weathered, with iron indurated bands.			
					4.0			4.00m SHALE, grey brown, medium strength, highly to moderately weathered.			
					4.5						
					5.0			5.00m Hole Terminated at 5.00 m Target depth Reached			
					5.5						
					6.0						

See Explanatory Notes for details of abbreviations & basis of descriptions.

Appendix III – Laboratory Test Results

Material Test Report

Report Number: **A201023.0722.00-2**
Issue Number: 1
Date Issued: 28/10/2024
Client: School Infrastructure NSW

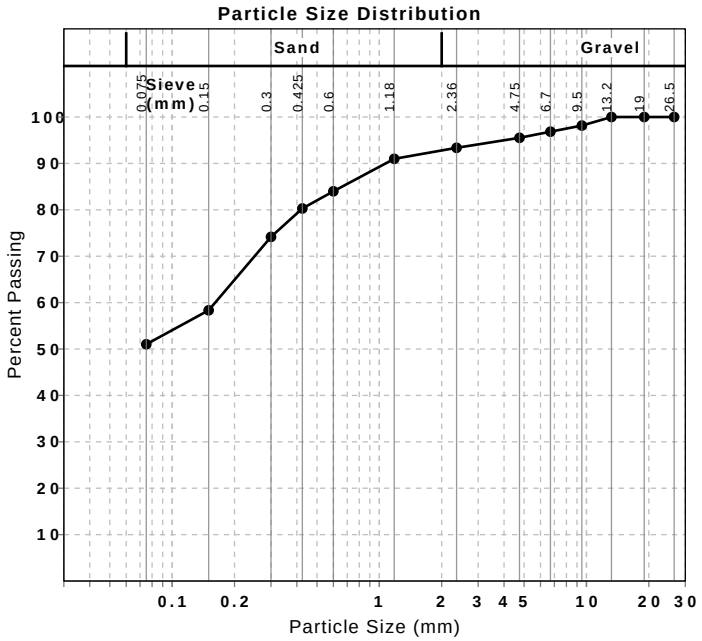
Project Number: A201023.0722.00
Project Name: Dundas Public School Additional Investigation
Work Request: 9068
Sample Number: 24-9068A
Date Sampled: 11/10/2024
Dates Tested: 17/10/2024 - 17/10/2024
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **BH08_PSD_0.5-1.0M**

ADE Consulting Group Pty Ltd
Construction and Material Testing Laboratory
Unit 1, 68-72 Asquith Street Silverwater NSW 2128
Phone: (02) 9648 6669

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Ashwin Tatikonda
CMT manager
NATA Accredited Laboratory Number: 21005

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
26.5 mm	**100**			0		
19 mm	**100**			0		
13.2 mm	**100**			0		
9.5 mm	**98**			2		
6.7 mm	**97**			1		
4.75 mm	**96**			1		
2.36 mm	**93**			2		
1.18 mm	**91**			2		
0.6 mm	**84**			7		
0.425 mm	**80**			4		
0.3 mm	**74**			6		
0.15 mm	**58**			16		
0.075 mm	**51**			7		



Material Test Report

Report Number: **A201023.0722.00-2**
Issue Number: 1
Date Issued: 28/10/2024
Client: School Infrastructure NSW

Project Number: A201023.0722.00
Project Name: Dundas Public School Additional Investigation
Work Request: 9068
Sample Number: 24-9068B
Date Sampled: 11/10/2024
Dates Tested: 18/10/2024 - 18/10/2024
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **BH08_Atterberg_0.5-1.0M**

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	54		
Plastic Limit (%)	21		
Plasticity Index (%)	**33**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	14.5		
Cracking Crumbling Curling	Curling		

ADE Consulting Group Pty Ltd
Construction and Material Testing Laboratory
Unit 1, 68-72 Asquith Street Silverwater NSW 2128
Phone: (02) 9648 6669

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Ashwin Tatikonda
CMT manager
NATA Accredited Laboratory Number: 21005

Material Test Report

Report Number: **A201023.0722.00-2**
Issue Number: 1
Date Issued: 28/10/2024
Client: School Infrastructure NSW

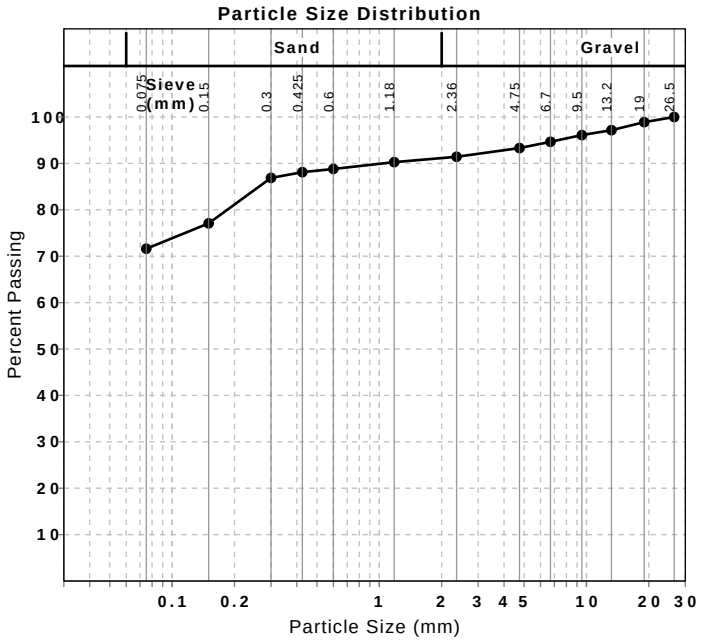
Project Number: A201023.0722.00
Project Name: Dundas Public School Additional Investigation
Work Request: 9068
Sample Number: 24-9068C
Date Sampled: 11/10/2024
Dates Tested: 17/10/2024 - 17/10/2024
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **BH10_PSD_0.5-1.0M**

ADE Consulting Group Pty Ltd
Construction and Material Testing Laboratory
Unit 1, 68-72 Asquith Street Silverwater NSW 2128
Phone: (02) 9648 6669

Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Ashwin Tatikonda
CMT manager
NATA Accredited Laboratory Number: 21005

Particle Size Distribution (AS1289 3.6.1)						
Sieve	Passed %	Passing Limits		Retained %	Retained Limits	
26.5 mm	**100**			0		
19 mm	**99**			1		
13.2 mm	**97**			2		
9.5 mm	**96**			1		
6.7 mm	**95**			1		
4.75 mm	**93**			1		
2.36 mm	**91**			2		
1.18 mm	**90**			1		
0.6 mm	**89**			1		
0.425 mm	**88**			1		
0.3 mm	**87**			1		
0.15 mm	**77**			10		
0.075 mm	**72**			5		



Material Test Report

Report Number: **A201023.0722.00-2**
Issue Number: 1
Date Issued: 28/10/2024
Client: School Infrastructure NSW

Project Number: A201023.0722.00
Project Name: Dundas Public School Additional Investigation
Work Request: 9068
Sample Number: 24-9068D
Date Sampled: 11/10/2024
Dates Tested: 18/10/2024 - 18/10/2024
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils
Sample Location: **BH10_Atterberg_0.5-1.0M**

Atterberg Limit (AS1289 3.1.2 & 3.2.1 & 3.3.1)		Min	Max
Sample History	Oven Dried		
Preparation Method	Dry Sieve		
Liquid Limit (%)	54		
Plastic Limit (%)	23		
Plasticity Index (%)	**31**		

Linear Shrinkage (AS1289 3.4.1)		Min	Max
Moisture Condition Determined By	AS 1289.3.1.2		
Linear Shrinkage (%)	14.5		
Cracking Crumbling Curling	Curling		

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Accredited for compliance with ISO/IEC 17025 - Testing

Approved Signatory: Ashwin Tatikonda
CMT manager
NATA Accredited Laboratory Number: 21005

Material Test Report

Report Number: **A201023.0722.00-2**
Issue Number: 1
Date Issued: 28/10/2024
Client: School Infrastructure NSW

Project Number: A201023.0722.00
Project Name: Dundas Public School Additional Investigation
Work Request: 9068
Date Sampled: 11/10/2024
Dates Tested: 18/10/2024 - 18/10/2024
Sampling Method: AS 1289.1.2.1 6.5.3 - Power auger drilling
Preparation Method: AS 1289.1.1 - Sampling and Preparation of Soils

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Approved Signatory: Ashwin Tatikonda
CMT manager
NATA Accredited Laboratory Number: 21005

Shrink Swell Index AS 1289 7.1.1 & 2.1.1					
Sample Number	24-9068E				
Date Sampled	11/10/2024				
Date Tested	18/10/2024				
Material Source	U50				
Sample Location	BH10_SS_0.5-0.8M				
Inert Material Estimate (%)	**				
Pocket Penetrometer before (kPa)	**				
Pocket Penetrometer after (kPa)	**				
Shrinkage Moisture Content (%)	28.0				
Shrinkage (%)	**4.7**				
Swell Moisture Content Before (%)	23.0				
Swell Moisture Content After (%)	24.3				
Swell (%)	**1.1**				
Shrink Swell Index Iss (%)	**2.9**				
Visual Description	Silty CLAY, yellowish brown				
Cracking	UC				
Crumbling	**				
Remarks	**				

Shrink Swell Index (Iss) reported as the percentage vertical strain per pF change in suction.
Cracking Terminology: UC Uncracked, SC Slightly Cracked, MC Moderately Cracked, HC Highly Cracked, FR Fragmented.
NATA Accreditation does not cover the performance of pocket penetrometer readings.

Further details regarding ADE's Services are available via

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