



Part of Epping West Public School 96 Carlingford Road, Epping

> Prepared for Hansen Yuncken Pty Ltd

> > Project 99674.05 January 2023



# **Douglas Partners** Geotechnics | Environment | Groundwater

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The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

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Long Term Environmental Management Plan Part of Epping West Public School 96 Carlingford Road, Epping

#### 1. Introduction

Douglas Partners Pty Ltd (DP) has been commissioned by Hansen Yuncken Pty Ltd on behalf of the Department of Education (DoE) to prepare this Long Term Environmental Management Plan (EMP) for a portion of the Epping West Public School (hereinafter referred to as 'the School'), located at 96 Carlingford Road, Epping shown on Drawing R.008.D.01, Appendix C (hereinafter referred to as 'the EMP Site').

The objective of this EMP is to provide a long term passive management strategy for contaminated soils that have been retained and capped on the EMP Site. It is noted that contamination, including asbestos contamination, is known to exist across other areas of the School, as discussed below and in Section 2, and are not covered by this EMP.

By implementing this EMP, the EMP Site can be considered suitable for its intended educational land use with respect to contaminated soil. Implementation is to continue permanently, unless future remediation removes the subject contaminated soils. A copy of this EMP is to be kept on-site and be available to site personnel at all times.

Asbestos at NSW government schools, including Epping West Public School, is managed under the following overarching plan:

• NSW Department of Education, *Asbestos Management Plan for NSW Government Schools*, November 2015, Revised October 2020 (DoE, 2020) (the 'DoE AMP').

The EMP Site must be managed under both this EMP and the DoE AMP (or superseding documents). Where requirements in the two plans differ, the most stringent requirement should be implemented; or where the requirements are conflicting, the measures required by this EMP must take precedence.

At the time of preparing this EMP the site owner was the DoE. Should ownership or operational control of the site change at any time, a copy of this EMP is to be provided to the new party responsible for the site, and the legal mechanism for enforcement must be reviewed and updated as required.

This report must be read in conjunction with all appendices including the notes provided in Appendix A.

#### Why is an Environmental Management Plan Required?

There is asbestos contaminated soil contained on site beneath a capping layer. Total recoverable hydrocarbons (TRH) above the ecological-based criteria were also recorded in a limited area of the EMP Site. It is considered that the management measures adopted for the asbestos are also adequately protective for the identified TRH.



This EMP addresses three main areas, namely:

- The risks associated with the contamination at the site.
- Maintenance requirements for the management measures (i.e., capping) and considerations.
- Procedures when conducting subsurface works.

#### Contamination in Areas of Epping West Public School Not Covered by this EMP

This EMP has been prepared to support the development of new facilities in the area shown on Drawing R.008.D.01, Appendix C (hereinafter referred to as 'the Upgrade Site'), with the EMP covering areas where contaminated soil was not completely removed, as shown on Drawing R.008.D.02.

Previous testing has confirmed the presence of contamination in soils in areas of the School outside of the EMP Site (and larger Upgrade Site). At the time of preparation of this EMP, areas outside of the Upgrade Site had not been remediated, and asbestos and other contaminants are understood to remain. Further information on this is provided in Section 2.

Contamination outside of the Upgrade Site (refer to Drawing R.008.D.01, Appendix C) therefore <u>requires</u> <u>management</u>, <u>which is not covered by this EMP</u>. The DoE AMP covers management requirements of asbestos, and it is considered that appropriate management of asbestos is also expected to manage the potential health risk presented from the other identified contaminants.

#### 2. Site Information and Background

Site details are provided in Table 1 below, and the site boundary and location are shown on Drawing R.008.D.01, Appendix C.

Address	Part of 96 Carlingford Road, Epping
Legal Description	Part Lot 11, Deposited Plan 109982
	Part Lot 1, Deposited Plan 122509
	Part Lot 1, Deposited Plan 161495
Zoning	R2: Low Density Residential
Local Government Area	Parramatta City Council
Consent Authority	The Minister for Planning and Public Spaces is the Consent Authority for the purposes of this EMP
Current Use	Primary School
Surrounding Uses	North - other areas of School, then West Epping Park
	East - Ward Street, then urban residential properties
	South - other areas of the School, then Carlingford Road, then urban residential properties
	West - other areas of the School, then urban residential properties

Table	1:	Site	Identification	Details
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Previous investigations identified the primary potential sources of contamination at the School as being:

- Imported fill of unknown origin. In addition to shallow filling present over much of the School, an
  area of relatively deep imported filling was identified in the north eastern portion of the School
  associated with former low lying ground in this area. Most of this deep fill is outside of the EMP
  Site, however the southern edge of this fill body extends onto the northern portion of the EMP Site.
- Demolition / deterioration of former buildings containing hazardous building materials.

Additional historical activities with the potential to cause contamination were identified to be the former deposition of lead and chromate containing paint pigment dust (in the southern portion of the School), on-site bonfires (in the northern area of the School) and a former World War 2 air-raid shelter trench (since backfilled with fill of unknown origin) (in the central portion of the School).

Previous contaminants identified at the School above the adopted health and / or ecological based assessment criteria<sup>1</sup> comprised asbestos, total petroleum hydrocarbons (TPH) / total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH) and polychlorinated biphenyl (PCB), with further information available in the report on the detailed site investigation<sup>2</sup>.

Contamination within the Upgrade Site (including the EMP Site) has been remediated as described in the validation reports<sup>3</sup>. In summary, contaminated soils within the EMP Site have been capped on site, whilst contaminated soils at the Upgrade Site outside of the EMP Site were removed and the areas validated as suitable for continued primary school use without further management.

The following stakeholders were consulted / had input as part of the development of this EMP:

- Schools Infrastructure NSW, who managed the upgrade works.
- The DoE, the site owner and operator responsible for implementation of this plan.
- Ms Rowena Salmon of Ramboll Australia Pty Ltd, the Site Auditor appointed for the project in accordance with the requirements of the NSW Contaminated Land Management Act 1997 (CLM Act) and the NSW Environmental Planning & Assessment Act 1979 (EP&A Act). Refer to the Site Audit Statement and Site Audit Report issued by Ms Salmon for further information on contamination at the Upgrade Site (including the EMP Site).

#### 3. Risks Associated with Asbestos

Asbestos has been linked to several health conditions as outlined below. Health risks from asbestos are associated with the inhalation of asbestos fibres. Management of emission of and / or inhalation of asbestos fibres is therefore, the most appropriate method to manage health impacts from asbestos.

<sup>&</sup>lt;sup>1</sup> Based on criteria for residential sites with accessible soils from the *National Environment Protection (Assessment of Site Contamination) Measure 1999* (as amended 2013) (NEPC, 2013)

<sup>&</sup>lt;sup>2</sup> DP (2021), refer to Section 8

<sup>&</sup>lt;sup>3</sup>DP (2023a) and DP (2023b) refer to Section 8



The following information is sourced from the SafeWork Australia document: *Asbestos-Related Disease Indicators*, May 2014 (pp.2):

"Asbestosis and other asbestos-related diseases usually only occur following lengthy periods of exposure to high levels of asbestos fibres. Mesothelioma, on the other hand, can develop from short or lengthy periods of low or high concentrations of asbestos, although exposure to asbestos fibres does not make the development of the disease inevitable."

"It can take up to 40 years or more after initial asbestos exposure for disease caused by asbestos to become evident. Each asbestos-related disease differs in the extent of exposure to asbestos fibres and time between exposure and the onset of disease.

This management plan outlines steps to minimise the risks of asbestos outlined above.

#### 4. Capping Layer and In-ground Services

#### 4.1 Capping Layer and Site Condition

The implemented capping approach is summarised as follows:

- Placement of an orange geotextile marker layer (mastaTEX<sup>™</sup> Orange) with 200 mm overlap between rolls across the areas of identified residual contamination. Note that the marker layer was not installed in a portion of the area along the eastern boundary of the EMP Site nor beneath two small areas of concrete (Drawings R.008.D.03A to R.008.D.03C, Appendix C).
- Placement of the capping layer over the marker layer.
- The thickness of the capping layer varies from approximately 85 mm to approximately 600 mm and comprises the surface finishes.

In addition to the capping layer, access to the sub-floor area of Building T, where asbestos contaminated fill is present above the marker layer, is restricted as follows:

- Southern and Western elevations include a block retaining wall up to the underside of the building and external levels have been finished up to that wall.
- Northern and Eastern elevations have been finished with a fixed perforated metal screen from the top of the mowing strip up to the underside of the building.

The broad 'types' of capping present at the site are provided in Table 2. The objectives of the capping approach are to:

- Maintain the suitability of the site for its use as an educational facility with respect to contamination.
- Maximise the protection of workers and site users with respect to contamination.
- Minimise impacts on the local environment.



Capping Type	Marker Layer Present	Finish Description	Capping Description	Capping Thickness
Type A1	Yes	Concrete	Concrete and base course	≥140 mm
Type A2	Yes	Turf, mulch or concrete	Soil	≥500 mm
Туре АЗ	Yes	Turf or mulch	Mulch or mulch and soil	≥100 mm, <500 mm
Type B1	No	Concrete	Concrete	Variable
Type B2	No	Garden bed with mulch, some areas of concrete	Mulch or concrete	Approximately 75 mm (design thickness, not surveyed)
Type B3	No	Turf	Turf and soil	Approximately 85 to 105 mm (excluding turf) (design thickness, not surveyed)
Type B4	No	Building T	Building T floor and sub-floor screens. <sup>1</sup>	Variable

#### Table 2: Capping Layer Types (refer to Drawings R.008.D.03A to R.008.D.03C)

Notes:

1. There is a marker layer over the original inground asbestos contaminated fill, however fill containing asbestos has been placed over this marker layer. It is understood that uncontaminated soil has been placed over this fill, however this has not been verified by DP.

Appendix C provides the following drawings showing the capping layer distribution and surveys of the thickness and / or surface level of the capping layer:

- DP Drawings R.008.D.03A to R.008.D.03C, Rev0
- Taylor Brummer Drawing EPPW LA CD L100, Rev 4
- Geosurv Drawing 210255-AB-LANDSCAPING-01[B], Rev B Sheets 1 and 2
- Surv3D Pty Ltd Job Reference 220026.102, Issue D
- Taylor Brummer Drawing EPPW LA CD L201, Rev 1
- Surv3D Pty Ltd Job Reference 220026.301, Issue B

Appendix D provides the following drawings showing the landscaping works and finishes:

- PTC Drawing EPPW CV CD DWG -00\_0401, Revision 3
- PTC Drawing EPPW CV CD DWG -00\_0402, Revision 1
- PTC Drawing EPPW CV CD DWG -00\_0421, Revision 1
- Taylor Brummer Drawing EPPW LA CD L200, Rev 2



- Taylor Brummer Drawing EPPW LA CD L000, Rev 2
- Taylor Brummer Drawing EPPW LA CD L100, Rev 4
- Taylor Brummer Drawing EPPW LA CD L200, Rev 4
- Taylor Brummer Drawing EPPW LA CD L201, Rev 1
- Taylor Brummer Drawing EPPW LA CD L300, Rev 3
- Taylor Brummer Drawing EPPW LA CD L301, Rev 3
- Taylor Brummer Drawing EPPW LA CD L601, Rev 0
- Taylor Brummer Drawing EPPW LA CD L701, Rev 0

#### 4.2 In-ground Services

Drawings of services, including notes on what is above or below the marker layer, are provided in Appendix E. Where there is any doubt as to whether services are above or below the capping layer it must be presumed for planning purposes that they are below the capping layer. Any works on services must be conducted in accordance with Section 6.

The following drawings are provided in Appendix E:

- Alland Group Drawing EPPS-ELE-CD-DWG-0002, Revision 2, showing electrical services.
- Pedavoli Drawing EPPW\_HYD\_CD\_00\_101, Revision 2, showing hydraulic services.
- Surv3D Job reference 220026.201, dated 01-01-22, showing stormwater.

#### 5. Maintenance of the Capping Layer

#### 5.1 Inspections

The capping layer and access restriction beneath Building T is to be maintained so that there remains a suitable barrier between site users and the contaminated soil and prevent the release of asbestos fibres.

To confirm the capping layer and access restriction beneath Building T is being appropriately maintained, periodic inspections are required by the designated DoE personnel responsible for implementation of this EMP. In this regard, the capping areas and blockwork and metal screen around the Building T subfloor, which include the building footprints and the hard and soft landscaping areas, are to be inspected as follows:

- At least every three months.
- As part of routine building / ground inspections.
- After periods of prolonged heavy rain.
- Whenever damage or disturbance has been observed and reported.



If any areas are encountering degradation more frequently, then the frequency of inspections is to be increased. Placement of a thicker capping layer (e.g., additional mulch in garden beds) should also be considered.

The inspections should record:

- The presence of holes or significant cracking in concrete capping.
- Any deterioration of the screening around the Building T subfloor which allows access to this area.
- The exposure of marker layer in any areas.
- The exposure of soil beneath mulch or turf.
- Visible thinning of the mulch layer. Spot checks of mulch thickness should be undertaken using a ruler to assess the need for rectification works.

When holes or cracking in a concrete capping are recorded, the need and urgency for repair should be evaluated, with the assistance of an occupational hygienist if required. This should include an assessment of the potential for exposure to the underlying soils. When exposure of the marker layer, soil or thinning of mulch are observed this should trigger rectification in accordance with Section 5.2. The urgency of the repair should be evaluated based on the remaining thickness of capping layer above the asbestos contaminated soil. Where delays to full rectification are anticipated the area should be monitored weekly pending works and if the remaining capping layer is less than 100 mm thick interim measures, such as placement of mulch or filling holes in the concrete with quickset concrete, should be conducted.

A copy of this EMP is to be made available to the designated DoE personnel conducting the inspections.

#### 5.2 Maintenance

Maintenance of the capping layer is to comprise:

- Type B2 and A3: topping up on mulch on a regular basis as part of routine garden maintenance.
- Type B3: maintaining healthy turf as part of routine garden maintenance.
- All: Any areas which are observed to have been subject to deterioration and are no longer consistent with the capping strategy (as discussed in Section 4) are to be made good. This is to comprise rectification of the marker layer and capping layer, or access restriction to the Building T subfloor, to the same or better standard than recorded in this EMP. Any non-routine works conducted on the capping layer are to be reinspected by the designated DoE personnel on completion of works to ensure it complies with the capping strategy.



#### 5.3 Record Keeping

All inspections and any works associated with the capping layer are to be recorded in the **Maintenance Log for the site**, which comments on areas inspected, any areas requiring works to the capping layer and the nature of any remedial works. This **Maintenance Log** can either be specific for this EMP or incorporated into the overall Maintenance Log for the site.

#### 6. Excavation and Soil Disturbance Works

#### 6.1 General Requirements

A default position for works on the site is to **minimise any works within, and particularly below, the capping layer**. Where works cannot be avoided the following procedure is to be implemented along with any other specific requirements for the proposed works.

All works within the areas of contained contaminated soils (as shown on Drawing R.008.D.02, Appendix C) which disturb the soil must be planned with the exception of the three activities excluded below, and conducted by persons aware of the presence of asbestos contaminated soil in the area. The requirements for works within the capping layer are provided in Section 6.2 and the requirements for works in asbestos contaminated soils are provided in Section 6.3. It is recommended that works which extend close to the base of the capping layer should be planned in accordance with Section 6.3 to prevent delays should asbestos contaminated soil be encountered (e.g. due to accidental over-excavation, the precision of the survey or erosion of the capping).

The following activities do not trigger the below requirements:

- Surface activities such as cutting the grass or addition of mulch or topsoil.
- Weeding in the upper 5 cm of topsoil.
- New plantings that do not extend within 100 mm of the contaminated soil, with review of the survey drawings required prior to works to confirm expected depth of the contaminated soil prior to works.

#### 6.2 Works Within the Capping Layer

Works within the capping layer that are not expected to penetrate the to the base of the capping layer require a plan to provide a contingency should asbestos contaminated soils be encountered and to provide rectification requirements. For routine works, the plan can be prepared to cover ongoing works and reviewed periodically (nominally annually) and may form part of the works safe work methods.

The plan must include, as a minimum:

- Observations which trigger works to stop.
- Contingency measures if asbestos impacted material / suspected asbestos impacted material is observed.
- Capping rectification requirements.



• The need for review of this EMP in accordance with Section 7.2.

An example plan is provided as follows, but should be updated for specific works as appropriate:

- Works are to stop immediately if the following are observed:
  - o Fragment(s) of fibre cement.
  - o Topsoil encountered at depth below non-topsoil materials.
  - o Soil with fragments of building debris in it (such as brick or tile). Note the one exception to this is known occasional tile fragments in the shale capping material in the Type 2A and 2B capping between Building A and Building S.
  - o Concrete slab cap unintentionally penetrated, exposing the underlying soil.
- If works are stopped in accordance with the above requirements, then:
  - o The potential asbestos contaminated soils are to be immediately covered, e.g., with plastic sheeting.
  - o Cordon off the affected area.
  - Ready access to the covered soils is to be prevented, e.g., by backfilling the excavation or placing an anchored board to cover the excavation. If the soil has been inadvertently excavated the excavated soil should be covered with a heavy plastic which is to be anchored around the edges.
  - o If backfilling cannot be conducted without uncovering the soil, additional works require planning in accordance with Section 6.3.
  - o If no further work is required, the excavation can be backfilled in accordance with the rectification requirements outlined below.
- Capping rectification is to comprise replacing soils or pavement to, as a minimum, the thickness provided on the survey plan in the EMP.
- Requirement for review of the EMP in accordance with Section 7.2 should be established on a case-by-case basis.

#### 6.3 Works Penetrating the Capping Layer or Work in Building T Subfloor

Responsibilities for excavation below the capping layer are provided in Section 7.1.

#### Planning

- During the planning process the proposed works are to consider the feasibility and approach to works given the presence of contamination (e.g., minimising the potential for exposure).
- The requirements for replacement of the marker and capping layers, validation of their replacement and the need to review and update this EMP in accordance with Section 7.2.
- Engagement of a Class A or B Asbestos Contractor who is suitably qualified to handle asbestos impacted soils.
- Engagement of an Occupational Hygienist holding an asbestos assessor license (a 'Hygienist').
- Approval from DoE's facility manager of the proposed works prior to commencing.



- Works are to be organised for periods when other site users are not required to be present in the work area or adjacent areas.
- SafeWork NSW must be notified five days in advance of any licenced asbestos removal works. For due diligence purposes DP recommends notifying SafeWork NSW for all works potentially involving handling of material below the capping layer.
- Development of appropriate Work Health and Safety Measures (e.g., safe work method statements (SWMS), works asbestos management plan (WAMP)) for the proposed works. This should include, inter alia, minimum requirements for personal protection equipment (PPE), operating hours (by default works should be scheduled outside of school hours in accordance with the DoE AMP) and asbestos air monitoring requirements. It is anticipated that, as a minimum, PPE required for protection from asbestos would include:
  - o Disposable full length body coveralls with elastic cuffs and hood (e.g., Tyvek suit).
  - o Disposable Gloves.
  - o Half-face P2 rated mask or similar.

#### **Excavation**

All requirements of the WAMP must be implemented, which should include:

- Issue a permit to work in accordance with the DoE AMP Section 3.7.3 and the DoE AMP Appendix A.
- Conduct all works in accordance with the approved plans.
- Cordon off the work area with barricades, hazard tape and signage specific to Asbestos Hazards, with a second barrier to be installed a minimum 10 m from the edge of the work area (or site boundary / building where appropriate). This is to provide a buffer between the work area (subject to PPE requirements) and the rest of the site.
- Conduct air monitoring for asbestos fibres around the work area. The monitoring points should be located on the second barrier (i.e., at the interface between where PPE does and does not need to be worn). It is anticipated that two locations would generally be required for works in small areas, although larger areas would likely require additional monitoring locations. Consultation with the Hygienist undertaking the air monitoring should be conducted to confirm an appropriate number of monitoring locations prior to commencing works.
- In soft landscaping areas, the clean soil capping, growing media, mulch etc should be stockpiled separately, placed on plastic sheeting and covered with plastic sheeting for subsequent reuse. Care must be taken to prevent cross contamination of these materials with the underlying contaminated fill. If cross contamination occurs the materials must be managed as asbestos contaminated, and either capped or disposed of off-site unless validated by a suitably qualified Environmental Consultant.
- Cut and remove the geofabric marker layer. It is expected that for extensive works the marker layer is likely to be damaged / rendered unsuitable for re-use, however where tight controls are maintained on its integrity it may be reused subject to inspection and approval by the Hygienist (or Environmental Consultant). Where the marker layer is damaged during removal, then this is be replaced by a new piece of the same or equivalent orange geofabric (note: geofabric used for the maker layer during construction was a mastaTEX<sup>™</sup> Orange non-woven geofabric from Jaybro).



- Conduct works below the capping layer and / or beneath Building T as required. Any excavated materials from below the capping layer or beneath Building T are to be placed on a separate plastic liner within the work area and covered with plastic. Where possible this material should be reinstated below the capping layer following completion of works to minimise the volume of material disposed off-site. Any soils replaced beneath Building T must be covered by uncontaminated soil or a marker layer to provide an additional barrier. However, if off-site disposal is required, the material is to be classified for waste disposal purposes prior to removal from site in accordance with the requirements of the Protection of the Environment Operations Act 1997 (POEO Act) and relevant guidelines.
- The contaminated soils are to be kept damp (not wet) during works to reduce the potential for the release of asbestos fibres.

#### On completion of the works

- Following completion of the works, backfill to the underside of the capping layer and reinstate or replace the marker layer. The top of the marker layer is to be inspected by a suitably qualified Environmental Consultant or an Occupational Hygienist holding an asbestos assessor license and an asbestos clearance certificate issued on completion of the inspection. This certificate is to be provided to the DoE and kept on record.
- For capped areas, by default a survey will be conducted of the extent and level of the marker layer in the works area to the same standard as that appended to this EMP. Alternate methods of recording the location and extent may be adopted for small areas / emergency works subject to DoE establishing that it is suitable for future management requirements.
- For capped areas, reinstate or replace the capping layer, with the removed capping layer material or new equivalent material. New material will be required if cross-contamination has occurred between the material below and above the capping layer during works.
- For Building T, reinstate blockwork or metal screen with the removed materials (if not damaged) or new equivalent material.
- In turf or planting areas reinstate or replace the removed growing media and mulch. New growing media / mulch will be required if cross-contamination has occurred with the material below the capping layer during works.
- For capped areas, by default a survey will be conducted of the extent and level of the top of the layer in the works area to the same standard as that appended to this EMP. This will then be overlaid on the below-cap survey to record the thickness of capping. Alternate methods of recording the location and extent may be adopted for small areas / emergency works subject to the DoE establishing that it is suitable for future management requirements.
- The DoE personnel responsible for implementation of this EMP are to inspect the area and make a record of the works conducted in the Maintenance Log. If works are deemed not acceptable, then further remedial works are to be conducted and the area reinspected by the designated DoE personnel until deemed suitable. In this regard, advice should be sought from a professional contaminated land consultant or Hygienist to assess the suitability of the works if the DoE personnel consider this beyond their skills and / or experience.
- Review and update this EMP in accordance with Section 7.2.



#### Protecting the public

The above works which address contaminated soil management and associated monitoring to mitigate exposure to site personnel are by extension also expected to address potential exposure to the surrounding land users. In this regard, where the above works are updated to address the specific works being conducted or other additional measures are adopted, these are also to be implemented with a view to addressing and mitigating the potential for the public to be exposed to asbestos.

#### 6.4 Emergency Works

Whilst not expected, if emergency works require disturbance of the capping and contaminated soils, works may commence immediately. In this regard, the risks associated with asbestos are to be outlined as part of the pre-work safety assessment and toolbox talk so personnel are aware that contamination is present, its associated risks and the mitigation / management protocols to be implemented during the works.

The following, as outlined in the works procedure in Section 6.1, is to be implemented:

- PPE requirements.
- Cordoning off the area to restrict access to appropriately briefed personnel with required PPE.
- Handling procedures for the capping, marker layer and contaminated soils.

Notification of works to SafeWork NSW by telephone immediately and subsequently in writing within 24 hours (where works involve disturbance of asbestos impacted soils is to occur).

For further information on managing asbestos associated with the emergency works, reference to SafeWork NSW *Code of Practice: How to Safely Remove Asbestos*, September 2016, may also be of assistance.

As soon as practical the following should also be conducted:

- Engagement of an Occupational Hygienist to review and provide advice (as necessary) on the work specific asbestos controls and procedures for workers and the public, provide works specific WAMP and conduct air monitoring.
- Engagement of an Asbestos Contractor who is suitably qualified to handle asbestos impacted soils. Note: handling of asbestos impacted soils by personnel without appropriate qualifications is to be limited to those works that are necessary for the emergency works.

#### 6.5 Air Monitoring

Monitoring for airborne asbestos fibres is to be carried out by the Hygienist prior to exposure of and during periods of work within the capped contaminated soils at positions nominated by the Hygienist. Where occupational exposure to asbestos materials is likely to occur, exposure is not to exceed half the occupational exposure standards for each hazardous building materials type or category as published by the National Occupational Health and Safety Commission (SafeWork Australia).



Throughout the duration of the removal and placement works air monitoring results should return results below 0.01 fibres/ml. The following table shows the actions to be taken should the fibre levels exceed this action level. The currency of the action levels given herein should be reviewed by the Hygienist and more stringent levels should be adopted if required by the relevant regulations at the time of works.

Action Level (fibres/ml)	Control / Action				
< 0.01	Continue with control measures.				
≥ 0.01 ≤ 0.02	<ul> <li>Notify the DoE.</li> <li>Review control measures.</li> <li>Investigate cause and implement controls to minimise further release.</li> </ul>				
≥ 0.02	<ul> <li>Stop removal work and notify SafeWork NSW and the DoE.</li> <li>Review control measures.</li> <li>Investigate cause including enclosure and equipment where present, clean immediate area and cover exposed soils with plastic / geofabric.</li> <li>Do not recommence work until any issues identified by investigation / review have been addressed and updated measures / procedures established, and air test results return readings of &lt; 0.01 fibres/ml.</li> </ul>				

Table 2: Asbestos Air Monitoring Thresholds

#### 6.6 Waste Disposal

All waste is also to be presumed to be asbestos waste, including used disposable coveralls, masks, dust sheets, wipes and items deemed contaminated with asbestos is to be kept damp until sealed, double wrapped in plastic sheeting or bags (at least 0.2 mm thick) and stored in a secure location until appropriately disposed of. This does not include asbestos impacted soils which are to remain capped or disposed off-site. The bagged waste shall be appropriately labelled as containing asbestos and removed from site as soon as practicable.

A stated in Section 1, if off-site disposal of excavated soil is required, the material is to be classified for waste disposal purposes prior to removal from site in accordance with the POEO Act. **The disposal of these surplus soils should be recorded in the Maintenance Log**.

#### 7. Responsibilities and Implementation

#### 7.1 Responsibilities

The site owner, the DoE, has accepted a draft version of this EMP and is responsible for its implementation. Access to the EMP must be maintained on internal facing websites to allow ready access for operational staff.



This includes ensuring that appropriate financial mechanisms are in place to fund its implementation. If the site is sold, a condition of the sale contract should be included so that the new owner inherits the responsibilities currently held by the DoE, i.e., implementation of the EMP would revert to the new owner on finalisation of the sale to ensure the ongoing suitability of the site for educational land use.

DoE can delegate the implementation of the EMP to a nominated staff member (e.g., operations manager who is responsible for management of the site). To allow for an ongoing knowledge and familiarity with the EMP, the nominated staff member plus at least one other is to be inducted into this EMP at all times. Inductions are to be recorded in the Induction Record Sheet presented in Appendix B.

Where the nominated staff member moves on for any reason, prior to their departure a comprehensive induction of this EMP for their replacement is to be conducted. Furthermore, in the absence of the nominated staff manager (e.g., if on leave), it is the responsibility of the staff member who is taking on the nominated staff member's responsibilities to ensure that the EMP is being appropriately implemented.

As part of their responsibilities, the nominated staff member is to:

- Be aware why the mitigation measures were installed, how they function and what their objectives are.
- Be aware of any works that may impact on the mitigation measures, such as penetration works through the capping and confirm the suitability of these works prior to and post completion.
- Be aware of any issues arising from inspection and maintenance works.
- Implement or support other staff to implement the requirements of this EMP during routine and non-routine subsurface works at the EMP Site.
- Maintain records of all inspections and works conducted to meet the requirements of this EMP, and of any excavation works below the cap which trigger additional requirements under this EMP.

In accordance with the DoE AMP the DoE Asset Management Directorate shall be advised immediately by any site personnel of any incidents of non-compliance with the AMP that have occurred. This should include any non-compliance with this EMP. It is the responsibility of the DoE to conduct a review of any non-compliance / potential non-compliance with this EMP. The review should clearly identify if a non-compliance has occurred and any rectification requirements, including the need to review and update this EMP. Record of the review and its outcomes, and along with the rectification works, should be maintained in the Maintenance Log. The process for reporting non-compliances is to be included as part of the induction into this EMP.

In addition to the above overarching responsibilities, in the event of excavation below the capping layer (refer to Section 6), the following additional responsibilities will apply:

- The Principal's (either the DoE, or its Principal Contractor) responsibilities<sup>4</sup> includes *inter alia*:
  - o To obtain specific related approvals as necessary to implement the required works, e.g., permits for the handling of ACM, etc.
  - o To develop or request and review plans to manage site works, including a specific WAMP.

<sup>&</sup>lt;sup>4</sup> The Principal may appoint appropriately qualified sub-contractors or sub-consultants to assist in fulfilling the requirements of the procedures.



- o That all site works, and other related activities are conducted in accordance with project documentation (e.g., WAMP and SWMS).
- o To maintain all site records related to the implementation of the EMP and any WAMP.
- o The Contractor has sufficient information to engage or direct all required parties, including subcontractors, to implement the requirements of the WAMP and other work documentation.
- o To manage the implementation of any recommendation made by those parties in relation to work conducted in accordance with the WAMP.
- o If appropriate, to inform the relevant regulatory authorities of any non-conformances with the procedures and requirements of the work specific WAMP in accordance with the procedures outlined in the document.
- o On completion of the project, to review the works WAMP records for completeness and update as necessary and provide to the DoE.
- o To recommend any modification to general documentation which would further improve the environmental outcomes of the work specific WAMP.
- o Review the EMP following any significant surface / sub-subsurface works at the site and update if required.
- The Asbestos Contractor is to be responsible for notifying SafeWork NSW regarding proposed works with asbestos for works involving the asbestos impacted soils and is to hold a Class A or B licence for the removal of asbestos (issued by SafeWork NSW).
- The Hygienist is to provide advice on worker health and safety (WHS) issues related to the asbestos works along with issues associated with the potential for the school users, adjacent residents and the public to be exposed to asbestos from the works. The Hygienist will hold an asbestos assessor licence, where appropriate, in accordance with the WHS Regulations. The Hygienist will be responsible for:
  - o Preparing any WHS plans and advice requested by the Principal.
  - o Conducting airborne asbestos monitoring.
  - o Conducting clearance inspections.
  - o Providing advice and recommendations arising from monitoring and / or inspections.
  - o Notifying the Principal with the results of any assessments and any observed nonconformances in a timely manner.

#### 7.2 EMP Review and Documentation

#### <u>Review</u>

The EMP must be reviewed:

- Following any significant surface / sub-subsurface works at the EMP Site and updated if required.
- Following update to the DoE AMP and / or NSW asbestos management regulation. It is understood
  that the DoE AMP requires review following relevant changes in legislation. Following update of
  the DoE AMP a high level review of the need to update site specific EMPs should be conducted
  with specific review of this EMP triggered in the event that a potential for additional or more stringent
  obligations relevant to on-site containment of asbestos are identified.



• Following any non-compliance with the EMP to establish if additional controls are required to mitigate against future non-compliances.

Significant works are considered to be any works within the capped area across the EMP Site which has the potential to alter the nature of the capping layer (including thickness) or marker layer. Any alterations or revisions to the EMP requirements must be completed by a suitably qualified contaminated land consultant. Where changes to the capping layer are made, however no changes to the EMP requirements are triggered, and the capping layer remains in accordance with those covered by this EMP an Addenda to the EMP comprising updated drawings of the capping layers or underground services (as applicable) can be prepared by or for SINSW.

A change in land use would require a new EMP to be produced unless the change in land use includes remediation of the site.

Any changes made to the EMP must be agreed in advance with a NSW EPA accredited Site Auditor.

#### **Documentation**

Each inspection and any maintenance works within the contaminated soils must be recorded in the sites Maintenance Log (a separate logbook for EMP associated works may be preferred). The date, time and description of the conducted works are to be recorded along with any required follow ups (e.g., further inspections, placement of additional mulch). The EMP Logbook documentation is to be kept with a copy of the EMP and filed.

#### 7.3 Enforcement of the EMP

This EMP is enforceable by the Minister for Planning and Public Spaces (the Consent Authority) under the EP&A Act.

The remediation works were conducted to address the requirements of the Development Consent dated 10 September 2021 for Application No. SSD-9250948. Condition E4 in Schedule 2 (Part E, Post Occupation) of the consent requires the applicant (DoE) to:

<sup>1</sup>Upon completion of remediation works, the Applicant must manage the site in accordance with the Environmental Management Plan approved by the Site Auditor (if any) under condition D25 and any on-going maintenance of remediation notice issued by EPA under the Contaminated Land Management Act 1997.<sup>1</sup>

This EMP meets the definition of the Environmental Management Plan referenced in Condition E4, and the site must therefore be managed in accordance with this EMP to meet the requirements of consent Condition E4.

#### 7.4 Public Notification

The EMP must be available to the public on external facing DoE websites.



#### 8. References

DoE. (2020). Asbestos Management Plan for NSW Government Schools. November 2015, Revised October 2020: NSW Department of Education.

DP. (2021). Report on Detailed Site (Contamination) Investigation (DSI) Proposed Epping West Public School Upgrade, 96 Carlingford Road, Epping. Reference 99674.03.R.001.Rev1, dated April 2021: Douglas Partners Pty Ltd.

DP. (2023a). *Report on Validation Assessment Stage 1 of Upgrade Works, 96 Carlingford Road, Epping.* Reference 99674.04.R.004.Rev1, dated January 2023: Douglas Partners Pty Ltd.

DP. (2023b). *Report on Validation Assessment Stages 2 and 3 of Upgrade Works, 96 Carlingford Road, Epping.* Reference 99674.05.R.005.Rev1, dated January 2023: Douglas Partners Pty Ltd.

EPA. (2020). *Guidelines for Consultants Reporting on Contaminated Land.* Contaminated Land Guidelines: NSW Environment Protection Authority.

EPA. (2022). *Preparing environmental management plans for contaminated land Practice Note.* NSW Environment Protection Authority.

NEPC. (2013). National Environment Protection (Assessment of Site Contamination) Measure 1999 (as amended 2013) [NEPM]. Australian Government Publishing Services Canberra: National Environment Protection Council.

NSW Government. (n.d.). Contaminated Land Management Act 1997. (CLM Act).

NSW Government. (n.d.). Environmental Planning and Assessment Act 1979. (EP&A Act).

NSW Government. (n.d.). Protection of the Environment Operations Act 1997. (POEO Act).

NSW Government. (n.d.). Workplace Health and Safety Act 2011. (WHS Act).

NSW Government. (n.d.). Workplace Health and Safety Regulations 2017. (WHS Regulations).

#### 9. Limitations

Douglas Partners Pty Ltd (DP) has prepared this report for this project at 96 Carlingford Road, Epping in accordance with DP's proposal 99674.04.P.003.Rev0 dated 5 October 2021 and acceptance received from Dylan Screpis dated 8 October 2021. The work was carried out under Agreement No. SC134\_018 dated 23 June 2021. This report is provided for the exclusive use of Hansen Yuncken Pty Ltd and the Department of Education 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.

DP's advice is based upon the conditions encountered during the reviewed 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 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.

**Douglas Partners Pty Ltd** 

# Appendix A

About this Report



#### Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

#### Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

#### **Borehole and Test Pit Logs**

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

#### Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

 In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;

- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

#### Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

## About this Report

#### **Site Anomalies**

In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

#### **Information for Contractual Purposes**

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

#### **Site Inspection**

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.

# Appendix B

Site Induction Record Template

#### Epping West Public School - 96 Carlingford Road, Epping Long Term Environmental Management Plan Induction Sheet

Date	Name of Inductee	Position	Signature of Inductee	Name of Inductor	Position of Inductor	Signature of Inductor

# Appendix C

Drawings of EMP Site and Capping Layer



	<b>Douglas Partners</b>	
<u>v</u>	Geotechnics   Environment   Groundwater	

LIENT:	Hansen Yuncken P	TITLE:	
FFICE:	Sydney	DRAWN BY: NLE	
CALE:	As Shown	DATE: 18.01.2023	

96 Carlingford Road, Epping

**REVISION:** 



<b>(</b> )	<b>Douglas Partners</b>
	Geotechnics   Environment   Groundwater

LIENT:	Hansen Yuncken P	ty Ltd		TITLE:	EMP Site Area
FFICE:	Sydney	DRAWN BY:	NLE		Epping West Public School
CALE:	As Shown	DATE:	18.01.2023		96 Carlingford Road, Epping

						Legend Upgrade site boundary, areas outside of this may have contamination not addressed by this LTEMP Capping Types A1 A2 A3 B1 B2 B3
			Concrete and base		B3 B2	
A1	Yes	Concrete	course	≥140 mm	DZ	Neber
A2	Yes	Turf, mulch or concrete	Soil	≥500 mm		Notes: 1. Basemap from MetroMap, dated 13 June 2022.
A3 B1	Yes	Turf or mulch	Mulch or mulch and soil	≥100 mm, <500 mm		2. Areas shown have been sourced from marker
		Garden bed with mulch	Concrete	Approximately 75 mm (design		approximate for reference purposes only. Refer to
B2	No	some areas of concrete	Mulch or concrete	thickness, not surveyed)		survey drawings for more detail.
В3	No	Turf	Turf and soil	(excluding turf) (design thickness, not surveyed)	0	5 10 15 20 m
В4	No	Building T	Building T floor and sub-floor screens	Variable	FELSE	
		o Doutro o re	CLIENT: Hansen Yunch	ken Pty Ltd	TITLE: Capping Layer Types - Overview	PROJECT No: 99674.05
	ougia	s partners	OFFICE: Sydney	DRAWN BY: NLE	Epping West Public School	DRAWING No: R.008.D.03A
Geo	otechnics   Er	nvironment I Groundwate	SCALE: As Shown	DATE: 18.01.2023	96 Carlingford Road, Epping	REVISION: 0

	A1
	A2
	A3
	B1
	B2
	В3
- UII (III)	B4

Capping Type	Marker Layer	Finish Description	Capping Description	Сар	pping Thickness	
A1	Yes	Concrete	Concrete and base course	≥14	0 mm	
A2	Yes	Turf, mulch or concrete	Soil	≥50	0 mm	
A3	Yes	Turf or mulch	Mulch or mulch and soil	≥10	0 mm, <500 mm	
B1	No	Concrete	Concrete	Vari	able	
B2	No	Garden bed with mulch, some areas of concrete	Mulch or concrete	App thic	roximately 75 mm (design kness, not surveyed)	
В3	No	Turf	Turf and soil	App (exc thicl	roximately 85 to 105 mm cluding turf) (design kness, not surveyed)	
B4	No	Building T	Building T floor and sub-floor screens	Vari	able	
	<b>ougla</b>	<b>S Partners</b> nvironment   Groundwate	CLIENT: Hansen Yund OFFICE: Sydney SCALE: As Shown	cken P	ty Ltd DRAWN BY: NLE DATE: 18.01.2023	TITLE:       Capping Layer Types - Overview         Epping West Public School       96 Carlingford Road, Epping

#### Legend

Upgrade site boundary, areas outside of this may have contamination not addressed by this LTEMP

Capping Types

A1
A2
A3
B1
B2
В3
Β4

#### Notes:

 Basemap from MetroMap, dated 13 June 2022.
 Areas shown have been sourced from marker layer and landscaping drawings, and are approximate for reference purposes only. Refer to survey drawings for more detail.

0	5	10	15	20 m
			PROJECT No:	99674.05
		( /× )	DRAWING No	: R.008.D.03B
			REVISION:	0

Capping Type	Marker Layer	Finish Description	Capping Description	Capping Thickness	
A1	Yes	Concrete	Concrete and base course	≥140 mm	
A2	Yes	Turf, mulch or concrete	Soil	≥500 mm	
A3	Yes	Turf or mulch	Mulch or mulch and soil	≥100 mm, <500 mm	
B1	No	Concrete	Concrete	Variable	
В2	No	Garden bed with mulch, some areas of concrete	Mulch or concrete	Approximately 75 mm (design thickness, not surveyed)	
В3	No	Turf	Turf and soil	Approximately 85 to 105 mm (excluding turf) (design thickness, not surveyed)	R DE
В4	No	Building T	Building T floor and sub-floor screens	Variable	
			CLIENT: Hansen Yund	cken Pty Ltd	TITLE: Capping Layer Types - Overview
	ougla	is Partners	OFFICE: Sydney	DRAWN BY: NLE	Epping West Public School
Geo	otechnics I Er	nvironment I Groundwate	SCALE: As Shown	DATE: 18.01.2023	96 Carlingford Road, Epping

96 Carlingford Road, Epping

#### Legend

Upgrade site boundary, areas outside of this may have contamination not addressed by this LTÉMP

Capping Types

A1
A2
A3
В1
B2
B3
B4

#### Notes:

 Basemap from MetroMap, dated 13 June 2022.
 Areas shown have been sourced from marker layer and landscaping drawings, and are approximate for reference purposes only. Refer to survey drawings for more detail.

0	5	10	15	20 m
			PROJECT No:	99674.05
		( /× )	DRAWING No	: R.008.D.03C
			REVISION:	0







LIST OF CHANGES SINCE TENDER 0. Plan updated to reflect the removal of tree 102 and tree 107. Location of proposed tree adjusted to suit. Steel edge moved to the inside

- of boundary fence
- 1.Plan updated to reflect the removal of BlockK. New school sign location updated to plan.2. A strip of step added to the edge of sandpit in
- lieu of rocks
- Layout of seating steps updated.
   Extent of ramp to Nature Play area refined.

AMEN	DMENT	S	
REV	BY	DATE	DESCRIPTION
Α	YP	13.08.2021	ISSUED FOR TENDER
В	YP	01.10.2021	ISSUED FOR TENDER
С	YP	23.11.2021	ISSUED FOR COORDINATION
0	YP	06.12.2021	ISSUED FOR CONSTRUCTION
1	YP	28.03.2022	ISSUED FOR CONSTRUCTION
2	YP	13.04.2022	ISSUED FOR CONSTRUCTION
3	YP	18.10.2022	ISSUED FOR CONSTRUCTION
4	YP	16.11.2022	ISSUED FOR CONSTRUCTION



TAYLOR BRAMMER LANDSCAPE ARCHITECTS PTY LTD AUSTINMER STUDIO 26 Moore St / PO Box 3064 Austinmer, NSW, 2515 E:southcoast@taylorbrammer.com.au T:61 2 9387 8855 Copyright of Taylor Brammer Landscape Architects Pty Ltd. AEN 61 098 724 988 ALTERATIONS AND ADDITIONS 96 CARLINGFORD RD EPPING NSW









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	~ CLIENT ~	SHEET No. 1 of 1
RAMATTA	AITKEN CIVIL	SCALE:1:100 @ A3



# Appendix D

Drawings of Landscaping Finishes



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SCALE 1:10

DENOTED ON PLAN



HANSENYUNCKEN	STRUCTURAL, MECH, & ESD NORTHROP (02) 9241 4188 CIVIL PTC CONSULTANTS (02) 8920 0800	LANDSCAPE ARCHITECT TAYLOR BRAMMER LANSCAPE ARCH. (02) 4267 5088 BCA GROUP DLA (02) 8355 3160	PARKING AND TRAFFIC CONSULTANTS PTY LTD SUITE 502, 1 JAMES PLACE	ptc.	96 CARLINGFORD RD, EPPING NSW 2121	PROJECT NORTH
NSW Education	ERBAS & ASSOCIATES PTY. LTD. (02) 9437 1022 HYDRAULICS	JAZ BUILDING CONSULTANTS (03) 9108 6198 ACOUSTIC	TEL: +61 2 8920 0800 WEB: www.ptcconsultants.co			
 GOVERNMENT   EQUCATION	WOOLACOTTS CONSULTING ENG. (02) 8203 1500	WHITE NOISE ACOUSTICS 1800 478 573			PAVEMENT DETAILS	

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SCALE AS SHOWN

22 OCTOBER 2021 REVISION

PROJECT DISCIPLINE PHASE TYPE EPPW - CV - CD - DWG - 00\_0421

DRAWING NUMBER

SERIES NUMBER

# EPPING WEST PUBLIC SCHOOL

# **CONSTRUCTION DOCUMENTATION PACKAGE**

# Prepared for: HANSEN YUNCKEN

# Prepared by:

Taylor Brammer Landscape Architects Pty Ltd

Drawing List		
DWG NO.	DRAWING TITLE	SCALE
L000	Landscape: Cover Sheet	NTS@A1
L100 L101	Landscape: Overall Site Plan Landscape: Existing Features Plan	1:500@A1 1:500@A1
L200 L201	Landscape: Finishes Plan Landscape: Finishes Plan	1:200@A1 1:200@A1
L300 L301	Landscape: Grading Plan Landscape: Grading Plan	1:200@A1 1:200@A1
L400 L401	Landscape: Planting Plan Landscape: Planting Plan	1:200@A1 1:200@A1
L500	Landscape: Cross-sections	1:100@A1
L600 L601 L602 L603 L604 L605	Landscape: Construction Details Landscape: Construction Details Landscape: Construction Details Landscape: Construction Details Landscape: Construction Details Landscape: Construction Details Landscape: Temporary Works	AS SHOWN AS SHOWN AS SHOWN AS SHOWN AS SHOWN AS SHOWN
L700 L701	Landscape: Specification Landscape: Specification	NTS@A1 NTS@A1
L800	Landscape: Setout Plan - South	1:200@A1

# LEGEND

# **Boundaries & Services**

!	S
	F
	SE
E	E
[6]	C T

SITE BOUNDARY
PROPERTY BOUNDARY
STORMWATER PITS TO ENGINEERS DETAIL
ELECTRICAL PITS TO ENGINEERS DETAIL

COMMUNICATIONS PITS TO ENGINEERS DETAIL

<b>°</b> +	HOSETAP TO ENGINEERS DETAIL
XX	FIRE HYDRANT TO ENGINEERS DETAIL
RWT	RAINWATER TANK TO ENGINEERS DETAIL
	OSD TANK TO ENGINEERS DETAIL

Levels		Hardscap	е
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120.5_	PROPOSED CONTOUR BY CIVIL ENGINEERS		N P/ El
+ 87.90	NEW SPOT LEVEL	E	TIN
+ TW 21.0	TOP OF WALL LEVEL	<u>SE</u>	S
1:14	RAMP TO ARCHITECTS DETAILS	MS	М
1:20	WALKWAY TO AS 1428.1	SL	S L Y

SP	EXIS <sup>-</sup> RETA
	CON TYPE DETA
	NEW PAVII ENGI
<sup>E</sup>	TIMBE
SE	STEE
MS	MOW
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REV	BY	DATE	DESCRIPTION
А	YP	13.08.2021	ISSUED FOR TENDER
0	YP	06.12.2021	ISSUED FOR CONSTRUCTION
1	YP	28.03.2022	ISSUED FOR CONSTRUCTION
2	YP	29.06.2022	ISSUED FOR CONSTRUCTION

LIST OF CHANGES SINCE TENDER 0. Sheet L604 and L800 added to the documentation.

Legend updated 1. Sheet L605 added to the documentation

2. Sheet L606 added to the documentation to include the temporary work. Legend updated.







# Softscape





DRAWING NAME

# Furniture and Fixtures

	GATE TO ARCHITECTS DETAIL		
SL	SLIDING GATE TO ARCHITECTS DETAILS		
F1	2150mm FENCE TO ARCHITECTS DETAIL		
_,F2,,	EXISTING SECURITY FENCE RETAINED		
[	TACTILE INDICATORS TO ARCHITECTS SPECIFICATION		
1111111	BIKE RAIL AS SPECIFIED		
[] s	SCHOOL SIGN LOCATION		
H	HANDRAIL TO ARCHITECTS DETAILS		
B	BALUSTRADE TO ARCHITECTS DETAILS		



PROJECT

**TaylorBrammer** TAYLOR BRAMMER LANDSCAPE ARCHITECTS PTY LTD AUSTINMER STUDIO 26 Moore St / PO Box 3064 Austinmer, NSW, 2515 E:southcoast@taylo nmer.com.au T:61 2 9387 8855 Copyright of Taylor Brammer Landscape Architects Pty Ltd. ABN 61 098 724 988

# LANDSCAPE: COVER SHEET

EPPING WEST PUBLIC SCHOOL ALTERATIONS AND ADDITIONS 96 CARLINGFORD RD EPPING NSW



 $\begin{pmatrix} 1 \\ L603 \end{pmatrix}$ 

 $\begin{pmatrix} 1 \\ L603 \end{pmatrix}$ 

(1) (L603)



CURVED SEAT AS SPECIFIED

SINK BENCH

MULCHED/

RETAINED

VEGETATION

AS SPECIFIED

SHED AS SPECIFIED

2 L603

NORTH

NTS @ A1 29 JUNE 2022 DISCIPLINE PHASE SERIES NUMBER REVISION PROJECT EPPW - LA - CD - L000 2



LIST OF CHANGES SINCE TENDER 0. Plan updated to reflect the removal of tree 102 and tree 107. Location of proposed tree adjusted to suit. Steel edge moved to the inside

- of boundary fence
- 1.Plan updated to reflect the removal of Block
   K. New school sign location updated to plan.
   2. A strip of step added to the edge of sandpit in
- lieu of rocks
- Layout of seating steps updated.
   Extent of ramp to Nature Play area refined.

AMENDMENTS				
REV	BY	DATE	DESCRIPTION	
Α	YP	13.08.2021	ISSUED FOR TENDER	
В	YP	01.10.2021	ISSUED FOR TENDER	
С	YP	23.11.2021	ISSUED FOR COORDINATION	
0	YP	06.12.2021	ISSUED FOR CONSTRUCTION	
1	YP	28.03.2022	ISSUED FOR CONSTRUCTION	
2	YP	13.04.2022	ISSUED FOR CONSTRUCTION	
3	YP	18.10.2022	ISSUED FOR CONSTRUCTION	
4	YP	16.11.2022	ISSUED FOR CONSTRUCTION	



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DRAWING NAME

LANDSCAPE: OVERALL SITE PLAN

**EPPING WEST PUBLIC SCHOOL** ALTERATIONS AND ADDITIONS 96 CARLINGFORD RD EPPING NSW

PROJECT





	YP	13.08.2021	ISSUED FOR TENDER
	YP	06.12.2021	ISSUED FOR CONSTRUCTION
	YP	28.03.2022	ISSUED FOR CONSTRUCTION
	YP	13.04.2022	ISSUED FOR CONSTRUCTION
	YP	29.06.2022	ISSUED FOR CONSTRUCTION
	YP	16.11.2022	ISSUED FOR CONSTRUCTION
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REV	BY	DATE	DESCRIPTION		
А	YP	13.08.2021	ISSUED FOR TENDER		
0	YP	06.12.2021	ISSUED FOR CONSTRUCTION		
1	YP	28.03.2022	ISSUED FOR CONSTRUCTION		
2	YP	13.04.2022	ISSUED FOR CONSTRUCTION		
3	YP	16.11.2022	ISSUED FOR CONSTRUCTION		







 
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 13.08.2021

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 YP
 06.12.2021
 ISSUED FOR TENDER ISSUED FOR CONSTRUCTION

**HANSENYUNCKEN** NSW Education



LANDSCAPE: CONSTRUCTION DETAILS

EPPING WEST PUBLIC **ALTERATIONS AND A** 96 CARLINGFORD RD EF

C SCHOOL
DDITIONS
PPING NSW

SCALE AS SHOWN @ A1 06 DECEMBER 2021 DISCIPLINE PHASE SERIES NUMBER PROJECT REVISION EPPW - LA - CD - L601 0

NORTH



# SOFTSCAPE

#### 1.0 SOILS

Mass planting beds Type: Native low 'P' Miz Depth: 150-300 refer to landscape details Supplier ANL Contact: 131 458

Turf Areas Type: Turf Underlay Depth: 75mm Supplier ANL Contact: 131 458

Growing Gardens/Vegetable Gardens Type: Complete Vegetable and Seedling Mix Depth: 300mm Supplier ANL Contact: 131 458

Turf Topdressing Type: sand-soil blend 80-20 Depth 10-30mm Supplier ANL Contact: 131 458

**Existing Vegetation** Type: Native 'P' Mix Application: 100mm surround to each plant Supplier ANL Contact: 131 458

### 2.0 MULCH

Mass Planting Beds Type: Forest Fines Depth: 75mm Supplier ANL Contact Tel 131 458

Mulch Beds Type: Forest Fines Depth: 75mm Supplier ANL Contact: 131 458

**Outdoor Learning Area** Type: Playground Mulch Depth: 75mm Supplier ANL Contact: 131 458

Growing Garden Type: Clean Straw Depth 100mm

#### 3.0 PLANTS SUPPLY

The Landscape Contractor is responsible for organising the delivery of plant stock to site and checking plant stock prior to accepting delivery on site to ensure the plants supply possess the following characteristics:

- Large healthy root systems, with no evidence of root curl, restriction or damage. • Vigorous, well established, free from disease and pests, of good form consistent with the species or variety.
- Hardened off, not soft or forced, and suitable for planting in the natural climatic conditions prevailing at the site.
- Trees must, unless required to be multi-stemmed, have a single leading shoot. • Any plants or trees that are accepted by the landscape contractor that do not meet this specification will be replaced at the contractor's expense

Replacement: Replace damaged or failed plants with plants of the same type and size.

#### PLANTING PROCEDURE

Do not plant in unsuitable weather conditions such as extremes of heat or cold, wind or rain. Before planting begins, complete cultivation, soil placement, fertilisation etc as previously specified.

- Before plants are installed all pot sizes shall have their roots pruned with an appropriate, clean, sharp instrument to eliminate any root confusion occurring at edge
- of pot zone. Before planting begins, thoroughly water the plants and the planting area. Keep the

area and plants moist during planting. Water the plants immediately after planting, and thereafter as required to maintain growth rates free of stress.

The contractor shall give notice, of not less than 24 hours, for inspections as nominated in inspect and hold point schedule

#### ROOT PRUNING OF TREES

Remove tree from container and root prune 20mm on sides and bottom to ensure all circling roots have been either severed or aligned radially into the surrounding soil. Plant as per detail.

AMEN	DMENT	S			
REV	BY	DATE	DESCRIPTION		
Α	YP	13.08.2021	ISSUED FOR TENDER		
0	YP	06.12.2021	ISSUED FOR CONSTRUCTION		



Type: Nutricote Standard Black 270 Day (16: 4.4: 8.3) or approved equal. Installation: Evenly distribute 5g per litre (rootball size) of fertiliser onto backfill area around rootball prior to placing mulch.

TREE PLANTING

Type: Nutricote Standard Brown 360 Day blend (16: 4.4: 8.3) or approved equal. Installation: Distribute 5g per litre (rootball size)of fertiliser into backfill around rootball Apply in 3 evenly spread layers as hole is filled. First layer is to be half way up the rootball, second layer 3/4 up the rootball and third layer 50-100mm from the soil finished surface level. This application ensures that the nutrients leeches evenly downwards into the soil profile and encourages outward root system growth.

#### 5.0 STAKING AND TYING

Stakes shall be straight plantation grown hardwood, free from knots and twists, pointed at one end and sized according to size of plants to be staked. 1x(1200x25x25mm)

a.	5-15 litre size plant	TX(TZUUXZ5XZ5mm)				
b.	35-75 litre size plant	2x(1500x38x38mm)				
С.	100 - 200 litre	3x(1800x50x50mm)				
Ties shall be 50mm wide hessian webbing or approved equivalent nailed or stapled to						
stake. Drive stakes a minimum one third of their length, avoiding damage to the root						
system, on the windward side of the plant.						

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# 4.0 FERTILISER

TYPE: Root Stop Root Barrier PRODUCT CODE: RS600 LOCATION: Refer to drawings SIZE: 600mm deep roll SUPPLIER: Arbor Green (Tel: 1300 760 642)

6.0 ROOT CONTROL BARRIER

INSTALLATION: The top of root control barrier to be located 150mm closer to the tree trunk than the base of the root control barrier. The angling of the root control barrier encourages root growth in a downward direction.



# 7.0 GEOTEXTILE

Type: Polymeric fabric formed from a plastic yarn composed of at least 85% by weight of propylene, ethylene, amide or vinyledenechloride and containing stabilisers or inhibitors to make the filaments resistant to deterioration due to ultraviolet light. Identification and marking: To AS 3705. Product: Bidim A34 or approved equivalent Supplier: Geofabrics Australia

# SOFTSCAPE

#### 9.0 TURF

#### PREPARATION

Spread 75mm of Turf Underlay as specified and finish flush with adjacent finished surface levels.

Provide a one (1)kg sample of imported topsoil mixes, if required, for approval. No imported topsoil shall be delivered to site prior to approval of the sample provided. TOPDRESSING

Topdress material shall be as specified in AS 4419 - 1999. Topdress material shall be clean washed river sand, free from any clay lumps, clods, weeds, tree roots, sticks, organic matter, rubbish and material toxic to plant growth and the like, and shall have a neutral pH and minimal salt content (measured oven dry of 0.1%).

Turf shall be of even thickness free from weeds and other foreign matter, lay in stretcher pattern with joints staggered and close butted. Deliver turf on site within 24

hours of being cut, and lay within 36 hours or being cut. Prevent it from drying out between cutting and laying. Evenly spread and mix 50g of fertiliser per m2 into topsoil prior to placing turf.

INSTALLATION & ESTABLISHMENT

Watering: Water as necessary to keep soil moist to a depth of 100mm. Protection: Protect newly turfed areas against traffic until grass is established.

Making Good: Lift failed turf and relay with new turf.

Fertilising: Two weeks after laying, fertilise turf as specified.

Topdressing : When the turf is established, lightly topdress to a depth of 10mm with topdress material as specified. Rub the dressing well into the joints and correct any unevenness of surface popdress in August or September.

Mowing: When the turf is established, mow at regular intervals to maintain an average height of 30mm.

Turf Type: Kikuyu

Recommended Supplier: A registered Turf grower to be approved by the Landscape Architect or an approved equivalent.

# MAINTENANCE PROGRAM

Maintenance shall mean the care and maintenance of the landscape works by accepted horticultural practice as rectifying any defects that become apparent in the landscape works under normal use. This shall include, but shall not be limited to, watering, mowing, fertilising, reseeding, returfing, weeding, pest and disease control, staking and tying, replanting and plant replacement, cultivation, pruning, aerating, renovating, topdressing, maintaining the site in a neat and tidy condition as follows:

## 1.0 GENERAL

The Landscape Contractor shall maintain the landscape works for the term of the maintenance (or plant establishment) period to the satisfaction of the Landscape Architect and Client. The Landscape Contractor shall attend to the site on a weekly basis. The maintenance period shall commence at practical completion and continue for a period of fifty two (52) weeks.

### 2.0 WATERING

Grass and trees shall be watered regularly so as to ensure continuous healthy growth. Street trees and larger plant stock are to be watered through the top of the rootball to ensure a thorough soaking of the plant rootball. Watering of street trees shall be carried out on a weekly basis throughout the maintenance period regardless of rainfall.

## 3.0 RUBBISH REMOVAL

During the term of the maintenance period the Landscape Contractor shall remove rubbish that may occur and reoccur throughout the maintenance period. This work shall be carried out regularly so that at weekly intervals the area may be observed in a completely clean and tidy condition.

#### 4.0 REPLACEMENTS

The Landscape Contractor shall replace all plants that are missing, unhealthy or dead at the Landscape Contractor's cost. Replacements shall be of the same size, quality and species as the plant that has failed unless otherwise directed by the Landscape Architect. Replacements shall be made on a continuing basis not exceeding two (2) weeks after the plant has died or is seen to be missing. The landscape contractor is to report any evidence of theft or vandalism to the Landscape Architect within one day of them occurring.

#### 5.0 STAKES AND TIES

The Landscape Contractor shall replace or adjust plant stakes and tree guards as necessary or as directed by the Landscape Architect. Remove stakes and ties at the end of the maintenance period if so directed.

## 6.0 PRUNING

Trees and shrubs shall be pruned as directed by the Landscape Architect. Pruning will be directed at the maintenance of the dense foliage or miscellaneous pruning beneficial to the condition of the plants. Any damaged growth shall be pruned. All pruned material shall be removed from the site.

#### 7.0 MULCHED SURFACES

All mulched surfaces shall be maintained in a clean and tidy condition and be reinstated if necessary to ensure that a depth of 75mm is maintained. Ensure mulch is kept clear of plant stems at all times.

## 8.0 PEST AND DISEASE CONTROL

The Landscape Contractor shall spray against insect and fungus infestation with all spraying to be carried out in accordance with the manufacturer's directions. Report all instances of pests and diseases (immediately that they are detected) to the Landscape Architect prior to spraying.

## 9.0 GRASS AND TURF AREAS

The Landscape Contractor shall maintain all grass and turf areas by watering, weeding, reseeding, rolling, mowing, trimming or other operations as necessary.

Apply lawn fertiliser as specified in fertilisers at the completion of the first and the last mowing, and at times as necessary to maintain healthy grass cover. Carry out last mowing and fertilisation not less than seven (7) days before the end of the maintenance period. Remove grass clippings from site. Grass and turf areas shall be sprayed with approved selective herbicide against broad leafed weeds as required by the Landscape Architect

#### and in accordance with the manufacturer's directions. No fertiliser is to be used on turf areas.

Grass and turf areas shall be kept mown to maintain a healthy and vigorous sward within the 30-75mm range, average 50mm.

### **10.0 WEED ERADICATION**

Eradicate weeds by environmentally acceptable methods using a non-residual glyphosate herbicide (eg: 'Roundup') in any of its registered formulae, at the recommended maximum rate. Regularly remove by hand, weed growth that may occur or recur throughout grassed, planted and mulched areas. Remove weed growth from an area 1000mm diameter around the base of trees in grassed areas. Continue eradication throughout the course of the works and during the maintenance period.

## 11.0 SOIL SUBSIDENCE

Any soil subsidence or erosion which may occur after the soil filling and preparation operations shall be made good by the Landscape Contractor at no cost to the client

## **12.0 COMPLETION**

Notwithstanding anything to the contrary in the Contract, The Landscape Architect may instruct the Landscape Contractor to perform urgent maintenance works. Should the Landscape Contractor fail to carry out these works within seven (7) days of such a notice, the Principal reserves the right to employ others to carry out such works and charges costs of these works to the Landscape Contractor.



LANDSCAPE: SPECIFICATIONS

DRAWING NAME

EPPING WEST PUBLIC SCHOOL ALTERATIONS AND ADDITIONS 96 CARLINGFORD RD EPPING NSW

			SCALE	NTS @ A1
		C	6 DECEN	/IBER 2021
PROJECT	DISCIPLINE	PHASE	SERIES NUME	ER REVISION
EPPV	V - LA -	CD	- L701	0

NORTH

# Appendix E

Drawings of Underground Services



![](_page_53_Figure_0.jpeg)

NOMINATED ARCHITECT: VINCE PEDAVOLI NSW REG. No. 5045

DRAWN DATE

DESCRIPTION

REV

EXISTING ENTRY EXISTING ENTRY BIKE PARKING X 10 SCOOTER PARKING X 10	
YMCA	
SITE PLAN SITE SERVICES	PROJECT NUMBER

![](_page_54_Figure_0.jpeg)

L 119:49 L 119:24 L 119:49 . L 119:24 L 119:59 . 120.7		<i>יייי</i>
12098 1209 1209 100 100 100 100 100 100 100 1	SURVEY REPORT - WORKS AS EXE I hereby report that the stormwater wo in this plan have been constructed in t and at the levels shown hereon in red differ from design levels -	ECUTE
Above (Marker layer in trench)	Daniel Golenia NSW registered surveyor su1123 29.11.2022 surveyor's reference - 220026.201 (17	155)
Above (Marker layer in trench)		
	x x x x x x x x x x x x x x x x x x x	<x< td=""></x<>

MGA North

0 10

		DATED: 01-01-22	LOT(S) & DP(S): EPPING WEST PUB
DATE	~ CHECKED ~	DATUM: AHD (GNSS)	
	DI	LEVEL PM 7728	STREET ADDRESS. CARLINGFURD RUP
	~ DRAWN ~	ORIGIN: RL 121.020	LOCALITY: EPPING 2121
	AB		LOCAL GOV: CITY OF PARRAMAT

![](_page_54_Picture_3.jpeg)