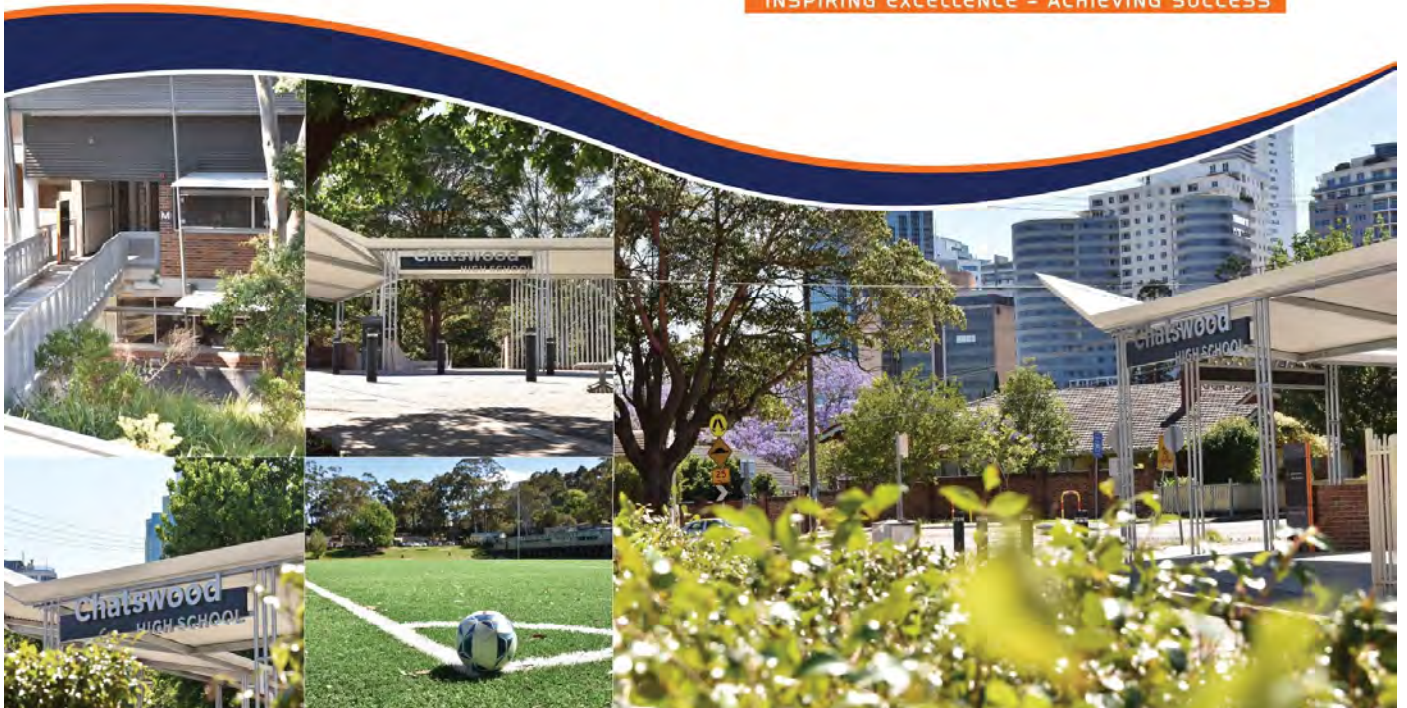


Chatswood High School Redevelopment

Environmental Management Plan

Richard Crookes Constructions Pty Ltd

Chatswood High School
INSPIRING EXCELLENCE - ACHIEVING SUCCESS



Reference: SYDEN290382-R07

4 December 2023

CHATSWOOD HIGH SCHOOL REDEVELOPMENT

Environmental Management Plan

Report reference number: SYDEN290382-R07

21 November 2023

PREPARED FOR

Richard Crookes Constructions Pty Ltd

Level 3, 4 Broadcast Way

Artarmon NSW 2064

PREPARED BY

Tetra Tech Coffey

Level 19, Tower B, Citadel Tower,

799 Pacific Highway, Chatswood, NSW 2067 Australia

p: +61 2 9406 1000

ABN 55 139 460 521

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CONTENTS

| | |
|--|-----------|
| 1. INTRODUCTION..... | 1 |
| 1.1 Overview | 1 |
| 1.2 Purpose and Objectives..... | 1 |
| 2. SITE INFORMATION | 2 |
| 2.1 Site Identification..... | 2 |
| 2.2 Site Description (Post-Remediation/Development) | 2 |
| 2.3 Site Environmental Setting..... | 2 |
| 2.4 Site History | 3 |
| 3. RESIDUAL CONTAMINATION REQUIRING MANAGEMENT | 3 |
| 3.1 Nature and Extent of Contamination..... | 3 |
| 3.2 Potential Exposure Pathways and Receptors..... | 3 |
| 4. CAPPING INFORMATION..... | 3 |
| 5. ASBESTOS IN FILL IN OTHER AREAS OF THE PROPERTY | 5 |
| 6. CONTAMINATION MANAGEMENT PROTOCOLS..... | 5 |
| 6.1 Roles and Responsibility for Implementing EMP | 5 |
| 6.2 Site Access | 6 |
| 6.3 Maintenance of Capping Layers and Inspections..... | 6 |
| 6.4 Capping Repair or Reinstatement..... | 7 |
| 7. ENVIRONMENTAL MANAGEMENT PROCEDURES FOR SUBSURFACE WORKS | 7 |
| 8. INSTITUTIONAL CONTROLS..... | 8 |
| 9. EMP REVIEW | 9 |
| 10. DOCUMENTATION AND REPORTING | 10 |
| 11. CONCLUSION | 10 |

LIST OF FIGURES

Figure 1: Property Boundary Plan

Figure 2: Chatswood High School Upgrade – Site Boundary & Active Construction Areas

Figure 3: Existing Landscaped and Concrete Paved Areas with No Marker Layer

APPENDICES

APPENDIX A: FIGURES

APPENDIX B: CAPPING LAYER SURVEY INFORMATION

APPENDIX C: DESCRIPTION OF ROLES & RESPONSIBILITIES TO IMPLEMENT EMP

APPENDIX D: CAPPING LAYER INSPECTION / REINSTATEMENT CHECKLIST

ABBREVIATIONS

| Abbreviations | Definition |
|---------------|--|
| ACM | Asbestos Containing Materials |
| AHD | Australian Height Datum |
| AMD | Asset Management Directorate |
| AMP | Asbestos Management Plan |
| AMS | Asset Management System |
| ARCP | Asbestos Removal Control Plan |
| DoE | NSW Department of Education |
| DPE | Department of Planning & Environment |
| EMP | Environmental Management Plan |
| EP&A Act | Environmental Planning & Assessment Act 1979 |
| mbgs | Metres below ground surface |
| NSW EPA | Environment Protection Authority of NSW |
| P&C | Parents & Citizens Association |
| PPE | Personal Protective Equipment |
| RCC | Richard Crookes Constructions Pty Ltd |
| SWMS | Safe Work Method Statement |
| WHS | Work Health & Safety |

1. INTRODUCTION

1.1 OVERVIEW

The Department of Education (DoE) has engaged Richard Crookes Constructions Pty Ltd (RCC) as Principal Contractor for redevelopment of Chatswood High School, which is located at 24 Centennial Avenue, Chatswood NSW (the 'property'). Figure 1 illustrates the location and extent of the property.

Soil within the property includes historical fill material which contains fragments of asbestos containing material (ACM) that has the potential to pose unacceptable risks to secondary school students, staff and visitors if asbestos fibres become airborne.

Part of the property has been remediated and redeveloped in stages where contamination has been progressively isolated beneath a capping layer to mitigate these potential risks to a low level. This remediation and redevelopment activity has occurred in the western and northwestern part of the property. The boundary of the redevelopment (herein referred to as the 'site') is shown on Figure 2.

This Environmental Management Plan (EMP) has been prepared by Tetra Tech Coffey Pty Ltd (Coffey) following a validation assessment that demonstrates that RCC has completed the capping layer within the site. Details of the validation assessments for the site are reported in the following documents:

- Coffey (Jan 2023); *Chatswood Public School Redevelopment; Validation Report: Stage 4 – Building S & Associated Landscaped Areas* (Ref: SYDEN290382-R06; Version 1 dated 17 Jan 2023)
- Coffey (Nov 2023); *Chatswood Public School Redevelopment; Validation Report: Stage 10 – Building Q, T and the High School Green* (Ref: SYDEN290382-R09; Version 3 dated 21 November 2023)

The DoE has developed an Asbestos Management Plan (AMP) which covers the management of asbestos within its portfolio of properties throughout NSW¹. This EMP sits under the AMP and relates directly to the management of asbestos impacted soil that has been capped within the site. Section 5 of this report notes that there is fill present in other areas of the property that has been potentially impacted by asbestos. The controls and procedures set out within the DoE's AMP remain relevant to the remainder of the property not covered by this EMP.

1.2 PURPOSE AND OBJECTIVES

The purpose and objectives of this EMP are to:

- Outline the nature, location and extent of contamination at the site requiring management.
- Describe how passive management of contamination at the site will reduce risk to a low level for the ongoing use of the site as a secondary school.
- Outline procedures to maintain capping layers over the long term.

¹ NSW Dept. of Education (2020); Asbestos Management Plan for NSW Government Schools (Available: <https://education.nsw.gov.au/content/dam/main-education/about-us/strategies-and-reports/media/documents/asbestos/asbestosmanplan.pdf>)

2. SITE INFORMATION

2.1 SITE IDENTIFICATION

Information relating to the site affected by this EMP is summarised in Table 2.1. The location of the property and site are shown on Figure 1 and Figure 2 (Appendix A).

Table 2.1: Site Information

| Item | Description |
|-------------------------------|---|
| Property Address | 24 Centennial Avenue, Chatswood NSW 2067 |
| Area | The site covers an approximate area of 12,500m ² . The property covers a total area of 5.9hectares. |
| Site Coordinates | North-western corner: 1443638 mE, 6213239 mS (GDA94 – MGA54) |
| Title identification | Part Lot 1 in Deposited Plan 1277206 |
| Current zoning | R2 – Low Density Residential in Willoughby Local Environmental Plan 2012 |
| Local Government Authority | Willoughby City Council |
| Consent Authority | Minister for Planning and Public Spaces |
| Site and Property Owner | NSW Department of Education (DoE) |
| Current and Proposed Land Use | Secondary school. The site includes school buildings and passive recreational areas. |

2.2 SITE DESCRIPTION (POST-REMEDATION/DEVELOPMENT)

The boundary of the site is presented in Figure 2, and includes the following features:

- Building S, which comprises multi-storey structure located within the southern part of the property.
- Building T, which comprises a gymnasium/performance hall with associated storage and welfare facilities.
- Building Q, which comprises a mixture of classrooms and offices for the administration of the high school.
- The 'High School Green', which comprises a courtyard situated between Buildings Q and T that is surfaced with synthetic turf and functions as an area for passive recreation.
- The remainder of the site comprises open space/passive recreational areas surfaced by a mix of synthetic turf and soft landscaping, and hard pavement that provide pedestrian access throughout the site.

Land surrounding the property is characterised by low density residential development to the north, west and south and medium density residential development to the east. The Chatswood Central Business District is located approximately 600m east of the property.

2.3 SITE ENVIRONMENTAL SETTING

The site is situated at an elevation of approximately 80mAHD with topography of the site and surrounding land sloping gradually downwards in westerly/southwesterly direction towards Swain's Creek, which is located approximately 350m to the southwest at its nearest point.

The site is underlain by Ashfield Shale Formation that comprises dark grey to black shale and laminite, which weathers to a residual clay profile of medium to high plasticity. Previous investigations completed within the property identified fill materials to a maximum depth of 2.2m below ground surface (mbgs) (PSM, 2020). Fill

materials generally had the consistency of dark brown gravelly silty sand with gravel inclusions. Anthropogenic inclusions including concrete, brick, glass, ash and metal fragments were observed in historical fill materials in some locations.

Natural residual soil underlying the fill material is described as grey – brown (with brown and yellow mottling) silty clay above grey weathered laminated shale and laminite bedrock.

Groundwater is expected to be present intermittently as discontinuous, lenses perched at the soil/bedrock interface that are recharged from rainfall events. Perched groundwater is likely to follow regional topography and flow towards Swaine's Creek. Runoff from the site will either infiltrate the subsurface via landscaped areas or enter the local stormwater drainage system via site drainage.

2.4 SITE HISTORY

The earliest records indicate that property was historically occupied by a single residential dwelling with the remainder comprising undeveloped natural bush. The property was acquired by the DoE in 1954 and opened as a school in 1959. The majority of school structures and associated recreational areas were constructed between 1959 and 1963, with several modifications made between 2005 and 2014.

The site has continued to be used as a school since 1959, with additional structures being added and structures/play areas being modified to accommodate the school's needs.

3. RESIDUAL CONTAMINATION REQUIRING MANAGEMENT

3.1 NATURE AND EXTENT OF CONTAMINATION

During initial redevelopment works, fragments of fibre cement materials containing asbestos were uncovered during excavation in historical fill material. These ACM were observed to be in a bonded (non-friable) form². The site has been redeveloped on the presumption that historic fill present across the site may contain ACM. This impact does not extend to natural, undisturbed soil or bedrock and recently imported fill materials used in redevelopment have been validated to have no asbestos.

3.2 POTENTIAL EXPOSURE PATHWAYS AND RECEPTORS

ACM poses a potential health risk where it is disturbed during excavation because asbestos fibres may become airborne and could be inhaled by a person in the vicinity of the work area.

Such persons may include school occupants (i.e. secondary school students, teaching/support staff), site visitors, occupants of neighbouring land, and workers involved in excavation on the site.

4. CAPPING INFORMATION

The risk associated with exposure to ACM impacted fill has been mitigated through the placement of capping layers across the site which eliminates the exposure pathway so that asbestos fibres are not able to become airborne.

² Bonded ACM in sound condition (i.e. does not crumble under moderate hand pressure) represents a low human health risk (ref: Section 4.6, Schedule B1, Guideline on Investigation Levels for Soil and Groundwater, ASC NEPM (NEPC, 2013))

The capping layer occurs as various materials and thicknesses across the entire site. The different capping layers and minimum thicknesses in each area of the site are described in Table 4.1. The as-built capping layer thickness is illustrated on the Capping Survey Plans presented in Appendix B.

Table 4.1: Capping Systems

| Capping System | Minimum Capping Thickness | Capping Materials 'top to bottom' (thickness) | Geotextile Marker Layer Present below Cap |
|--------------------------------------|---------------------------|---|---|
| Building S, T & Q | 150mm ^(a) | Reinforced concrete slab for lower ground floor | No |
| Concrete Pavement (Pavement Type 3) | 130 - 150mm | Reinforced concrete (100mm) Compacted bedding sand or well graded aggregate (30mm – 50mm) below the concrete | Yes ^(b) |
| Asphalt Pavement | 150mm | Asphalt wearing coarse over compacted subbase material | Yes |
| Artificial Turf (Synthetic Turf) | 125 – 200mm | Bedding and surface pavement materials (25-100mm) Compacted engineered fill (100mm) below | Yes |
| Natural Turf | 100mm | Planting topsoil (100mm) overlain by turf | Yes |
| Mass Planting Zones / Planter Boxes | 300mm | Planting topsoil and surface mulch (300mm) | Yes |
| Gravel | 100mm | Coarse basalt 'blue metal' gravel | Yes |
| Sandstone Bleacher (Sandstone Block) | Not Stated | Sandstone block placed to form a 'stepped' amphitheatre. | Yes |
| Existing Concrete Pavement (Slab) | Not Stated | Concrete pavement materials not disturbed during development. | No |
| Existing Landscaping | 100mm ^(c) | Mulch cover around landscaped zones/trees | Yes |

Notes:

- (a) The building slab was designed to be 150mm thick and has not been recorded in the survey plans provided in Appendix B. No marker layer was installed below the building slab. This complies with the Remediation Works Plan (Coffey, 2022).
- (b) Concrete staircase immediately north of Buildings S and T were constructed with the building slab and no marker layer beneath this pavement. Refer Section 6.3
- (c) Existing landscaped areas along the western boundary of the site, adjoining Building S and the amphitheatre has leaf litter / timber mulch cover but no marker layer. Refer Section 6.3.

New service trenches were constructed and filled with aggregate (for bedding) and site-won fill material. The marker layer was placed on the top of the backfilled service trench prior to placement of landscaping materials.

The marker layer installed within the site comprises an orange-coloured, non-degradable, non-woven geotextile fabric that was placed over historical fill material remaining within the site outside of building footprints. The purpose of the marker layer was to separate potentially contaminated fill from the capping materials above, and act as a highly visible indicator to alert workers who may disturb the capping layer

(intentionally or otherwise) when conducting future maintenance activity or construction. The photographs below illustrate the marker layer installed in different areas of the site.



Photograph 1: Elevated view of marker layer installed beneath the High School Green.



Photograph 2: Marker layer installed in landscaped area east of Building S.

Any future works that penetrate the marker layer will potentially disturb historic fill materials containing ACM. Any disturbance of ACM impacted fill requires controls to mitigate potential health risks, including proper classification and disposal of surplus fill material and restoring the capping layer at the end of those works.

5. ASBESTOS IN FILL IN OTHER AREAS OF THE PROPERTY

The Interim Audit Advice dated 10 July 2020 prepared by Ms Rowena Salmon of Ramboll Australia Pty Ltd prepared in relation to Preliminary and Detailed Site Investigation reports for the entire Property refers to three separate information sources³ which indicate that ACM and friable forms asbestos were encapsulated beneath the 'oval' (presumed to comprise the synthetic turf-surfaced sports pitch in the southeastern quarter of the Property).

The IAA provides evidence that asbestos may exist in fill materials in areas of the Property that do not form part of the completed development (i.e. 'site'). The controls and procedures set out within the DoE's AMP would apply to the remainder of the property not covered by this EMP.

6. CONTAMINATION MANAGEMENT PROTOCOLS

6.1 ROLES AND RESPONSIBILITY FOR IMPLEMENTING EMP

The management of health risk posed by fill materials containing ACM within the site relies on the capping layers being maintained.

As the site owner, the DoE has the overall responsibility for this property and therefore the responsibility to ensure that the capping layers remain effective over the long term. It is expected that the DoE would delegate

³ These information sources include studies prepared by Parsons Brinckerhoff (PB) (2015) and Environmental Investigation Services (2014), and a separate media release. These information sources were not available for review by the Site Auditor or Coffey.

this 'operational' management responsibility to a School Facility Manager (i.e. a person with responsibility for the DoE Facility such as the Principal, an Asset Management Unit Officer or a suitably appointed delegate).

A summary of environmental management responsibilities relating to the implementation of this EMP is presented in Appendix C.

In the event that the Property is sold, the responsibility for implementing this EMP will reside with the new landowner. The EMP will require amendment by the new landowner to reflect the site use and management systems.

6.2 SITE ACCESS

Following Site Auditor endorsement of the Validation Assessments and this EMP, the site shall be handed over to the DoE for use as a secondary school. The DoE shall remain responsible for controlling access to the property.

6.3 MAINTENANCE OF CAPPING LAYERS AND INSPECTIONS

RCC shall be responsible for ongoing inspections and maintenance of the capping layer for a period of 12 months following the completion of development works within the site. After the initial 12 months, the DoE appointed Facility Manager shall be responsible for completing periodic inspections and maintenance activities relating to the capping layers in the school zone.

RCC and/or the Facility Manager shall be responsible for conducting or engaging a suitably qualified individuals to conduct site inspections to check the integrity of the capping layers.

Inspections (identified as 're-inspections' within the DoE Asbestos Management Plan) of the caps are required to be undertaken by an experienced person with knowledge of site conditions on the following occasions:

- Annually (at a minimum).
- Whenever damage or disturbance to the cap has been observed/reported (e.g. the orange marker layer becomes visible).
- Following subsurface works which disturbs the marker layer or building floor slab (to ensure the cap has been appropriately reinstated and any waste fill material appropriately managed).

Appendix D provides an inspection checklist proforma to record observations during the inspection of the capping layer, and recommendations for corrective action.

Where damage to, or an insufficient thickness of capping material above, the orange marker layer is observed, corrective action should be implemented immediately.

Areas of existing landscaping immediately west of Building S (powerful owl habitat) and the amphitheatre comprised existing landscaping that was not modified by the development. RCC has placed a surface layer of timber mulch cover but no marker layer was installed. If soil materials are exposed in areas of existing landscaping, mulch shall be topped up to achieve the required cap thickness as listed in Table 4.1.

Paved staircases immediately north of Building S and T were constructed as part of the building slab and were not provided with a marker layer. The concrete pavement covering these areas functions as the marker layer. Disturbance of the concrete pavement must be managed as if the marker layer has been penetrated.

Figure 3 illustrates the extent of areas where no marker layer was provided outside of the building footprints.

Other administrative controls may also be necessary to minimise exposure where repairs cannot be completed immediately. Such controls may include temporary restrictions and/or erection of barrier fencing around the area of damage.

6.4 CAPPING REPAIR OR REINSTATEMENT

If the capping layer has been damaged or compromised, the cap shall be repaired on a like-for-like basis to meet the requirements outlined in Table 4.1.

Products such as soil, aggregate and mulch imported to the site for the purpose of replacing/replenishing the capping layer materials will be required to be new materials purchased from a reputable commercial supplier. The use of recycled soil materials should be avoided.

The Facility Manager shall carry out periodic inspections during, and at the completion of the works, to confirm that the capping layer has been repaired or reinstated, waste (surplus soil and fill) is appropriately managed and disposed offsite, and that no historical fill material is exposed at the ground surface. Any historical fill material which cannot be placed below a capping layer must be classified as waste and properly disposed off-site to a licensed facility.

7. ENVIRONMENTAL MANAGEMENT PROCEDURES FOR SUBSURFACE WORKS

Landscaping works such as turf mowing and routine care to maintain vegetation within the site is not expected to significantly disturb ground below the marker layer. However, it is recommended that the Facility Manager brief the landscape contractor on the presence of contamination within the site below an orange marker layer, or the potential to unexpectedly encounter asbestos when working in areas of the property that do not benefit from a capping layer.

In the event that the landscape contractor observes the orange marker layer or suspected ACM, they must report this to the Facility Manager who will inspect the affected area in accordance with Section 6.3 of this EMP.

Other subsurface works within the site should generally be avoided to minimise the chance of damage to the capping layer and exposure to contamination. This section outlines the minimum management procedures and controls for managing contamination where the capping layer will be significantly exposed or breached as a result future subsurface maintenance or construction works.

Table 7.1 presents a summary of the minimum management procedures required where planned works breach the capping layer or building slab.

Table 7.1: Summary of Management Procedures where a Breach of the Capping Layer is Planned

| Aspect | Management Procedure |
|---|--|
| Inductions | <ul style="list-style-type: none"> The Facility Manager shall, prior to commencement of works, brief the Contractor preparing for subsurface maintenance works on the presence and nature of contamination within the site, and provide a copy of this EMP to assist the contractor in the development of their Work Plan. |
| Contractor Work Plan Health, Safety & Environmental Planning | <ul style="list-style-type: none"> The Contractor shall develop a Work Plan describing the proposed works, which must be accompanied by Safe Work Method Statements (SWMS) that identify the foreseeable environmental and safety hazards, including ACM impacted fill material, associated with planned works, and the controls that will be implemented to remove or manage the associated risks. The Work Plan shall include details on how disturbed historical fill material will be managed and how the capping layer will be reinstated. The Work Plan must be reviewed and approved by the Facility Manager prior to the commencement of the planned works. The Contractor and/or Facility Manager may engage a suitably qualified consultant to assist in developing or reviewing the Work Plan and SWMS to confirm that these documents comply with this EMP. |

| Aspect | Management Procedure |
|--|--|
| Timing of Works | <ul style="list-style-type: none"> Subsurface works that will breach the capping layer should be planned to be undertaken on weekends and/or in school holidays to minimise potential risks to students, teachers, and visitors. |
| Disturbance of Capped Contamination (or where works are planned in areas where no marker layer is present) | <p><u>Where the capping layer will be breached, the following procedures must be implemented:</u></p> <ul style="list-style-type: none"> Consultation with school representatives (staff, P&C Association) to inform them of the works and alleviate concerns regarding works involving historical fill contaminated with asbestos. The Contractor must be licensed by SafeWork NSW as a Class B Licensed Asbestos Removal Contractor. A Licensed Asbestos Assessor (not related to the Contractor) must be engaged to conduct asbestos air monitoring and visual clearance during/following the works. The Contractor must prepare an Asbestos Removal Control Plan (ARCP), and lodge this to SafeWork NSW with notification to commence excavation of soil potentially containing asbestos. The ARCP must align with the requirements of this EMP and outline minimum requirements for personal protective equipment (PPE), equipment decontamination, dust suppression and asbestos air monitoring. The Contractor must conduct an appropriate induction for workers on the potential health risks and control measures when working with soil containing asbestos. The work site must be segregated from the remainder of the property using appropriate barricades to prevent unauthorised access. Signage must be placed to demark 'Asbestos Work Area' and display contact details for key Contractor personnel involved in the works. Personnel conducting subsurface works on site must be provided and wear appropriate PPE in line with Work Health and Safety (WHS) requirements and the ARCP. Dust suppression methods shall be used to minimise the potential for dusts and asbestos fibres to be released from the work site. Plant and reusable equipment shall be decontaminated to prevent tracking potentially contaminated soil to areas beyond the work site. Contractor shall establish and maintain sediment and erosion controls (as appropriate) to prevent runoff leaving the work site. Waste materials shall be stored within designated areas on an appropriate liner to minimise cross contamination of other materials, and temporarily covered whilst dormant on the work site. Wastes shall be classified in accordance with NSW EPA (2014) Waste Classification Guidelines removed in a controlled manner and disposed offsite at a facility licensed to receive such wastes. Materials excavated from below the marker layer must not be used to reinstate the capping layer, but may be placed below the marker layer to reinstate the work site. |
| Capping Reinstatement | <ul style="list-style-type: none"> The capping layer shall be reinstated on a like for like basis at the completion of the works. At the completion of the works, the Facilities Manager and their appointed environmental consultant shall carry out inspections to confirm that the capping layer has been reinstated appropriately, waste is appropriately managed and disposed offsite, and the ground surface is free of contaminated spoil |

8. INSTITUTIONAL CONTROLS

This EMP will be reviewed and endorsed by the NSW EPA accredited Site Auditor appointed to issue a Site Audit Statement regarding the suitability of the redeveloped site for its intended continued use as a secondary school. It is expected the Site Auditor will include the requirement to implement the EMP as a condition of the Site Audit Statement issued in relation to the redevelopment. The Site Audit Statement shall be provided to the Department of Planning & Environment (DPE), the accredited Certifier, and Willoughby City Council at the completion of the development.

This EMP is a requirement to satisfy Condition C37 of Development Consent SSD 9483 issued by Department of Planning, Industry & Environment⁴ and as such it will be legally enforceable. This EMP will become effective from the date the Site Auditor issues their Site Audit Statement regarding suitability of the site for school use in accordance with NSW EPA (2017) Guidelines for the NSW Site Auditor Scheme (3rd edition).

A copy of the Site Audit Statement and the final EMP shall be submitted to the NSW EPA, and Willoughby City Council so that its relevance to the Property can be recorded on, inter alia, the Planning Certificate issued under Section 10.7 of the EP&A Act 1979. This will enable interested parties to be made aware of the EMP and contamination within the Property.

The DoE has developed an AMP which provides generic procedures regarding the management of asbestos containing materials within DoE property. As required by the DoE AMP, all asbestos-related files are maintained on the DoE Asset Management Directorate (AMD) Asset Management System (AMS). This EMP provides specific information regarding the location and controls to manage asbestos present in soils within the site, and it is intended to complement the generic procedures outlined within the DoE AMP. This EMP shall also be added to the DoE AMS to ensure it remains accessible by state office and AMD staff with principals and Facility Managers able to access the same files via AMS on the internet.

The DoE maintains an online asbestos register⁵ for certain schools which require on-going asbestos management. This EMP shall be added to the online asbestos register.

9. EMP REVIEW

The DoE shall conduct periodic reviews to ensure the document is current and conforms to the environmental objectives and legal requirements for operation of a secondary school. Reviews shall be carried out by an appropriately qualified and experienced environmental consultant (e.g., Certified Environmental Practitioner – Site Contamination Specialist, or equivalent), every two years, or sooner if necessary as a result of any of the following:

- Proposed changes to the cap inspecting frequencies/methodologies.
- Whenever maintenance or construction works modify the capping layers.
- Whenever there is change in NSW legislation regarding the management of contamination or asbestos in the workplace.
- Instances where there has been a failure of the EMP and a revision is required to address the failure.

Changes to the EMP shall be authorised by a NSW EPA accredited Site Auditor or Certified Environmental Practitioner – Site Contamination Specialist. The changed EMP, with advice summarising the changes made shall be provided to Willoughby Council, DoE Representatives. The DoE Representatives shall notify the AMD when the EMP has been revised such that the AMS and online asbestos register can be updated and the relevant stakeholders can be notified in writing by the AMD accordingly.

A copy of the revised EMP should be provided to the NSW EPA as the EMP is integral to the Site Audit Statement issued for a statutory audit.

⁴ Currently referred to as the Department of Planning & Environment (DPE)

⁵ NSW Department of Education – School Infrastructure. Schools Asbestos Register. <https://www.schoolinfrastructure.nsw.gov.au/what-we-do/we-look-after-our-schools/schools-asbestos-register.html>

10. DOCUMENTATION AND REPORTING

Relevant documentation regarding the implementation of this EMP shall be maintained by the Facility Manager, including:

- Details of any inductions provided to DoE employees, workers, visitors, and/or contractors and subcontractors in relation to implementation of this EMP;
- Works undertaken that breach the capping layer, including the reinstatement of the cap once such works are completed; and
- Details of inspections and corrective measures carried out with respect to maintaining the integrity of the capping layer.

These records should be maintained by the DoE for a minimum of seven years.

11. CONCLUSION

This EMP has been prepared to confirm the presence of historical fill material impacted by asbestos containing materials (ACM) within the site and to outline contamination management measures required to be implemented during ongoing use of the site as a secondary school, and minimum control measures to be implemented during future subsurface maintenance works.

Coffey considers that subject to appropriate implementation of this EMP, the site is suitable for continued use as a secondary school.

LIMITATIONS

IMPORTANT INFORMATION ABOUT YOUR TETRA TECH COFFEY ENVIRONMENTAL REPORT

Introduction

This report has been prepared by Tetra Tech Coffey for you, as Tetra Tech Coffey's client, in accordance with our agreed purpose, scope, schedule and budget.

The report has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared, and the opinions, recommendations and conclusions set out in the report are made in accordance with generally accepted principles and practices of that profession.

The report is based on information gained from environmental conditions (including assessment of some or all of soil, groundwater, vapour and surface water) and supplemented by reported data of the local area and professional experience. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterisation of site conditions is an interpretation of information collected during assessment, in accordance with industry practice.

This interpretation is not a complete description of all material on or in the vicinity of the site, due to the inherent variation in spatial and temporal patterns of contaminant presence and impact in the natural environment. Tetra Tech Coffey may have also relied on data and other information provided by you and other qualified individuals in preparing this report. Tetra Tech Coffey has not verified the accuracy or completeness of such data or information except as otherwise stated in the report. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to an adjacent site or area, nor can it be used when the nature of the specific purpose changes from that which we agreed.

For each purpose, a tailored approach to the assessment of potential soil and groundwater contamination is required. In most cases, a key objective is to identify, and if possible quantify, risks that both recognised and potential contamination pose in the context of the agreed purpose. Such risks may be financial (for example, clean up costs or constraints on site use) and/or physical (for example, potential health risks to users of the site or the general public).

Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Tetra Tech Coffey.

The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete.

This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of contamination or other environmental hazards can change over time, as a result of either natural processes or human influence. Tetra Tech Coffey should be kept apprised of any such events and should be consulted for further investigations if any changes are noted, particularly during construction activities where excavations often reveal subsurface conditions.

In addition, advancements in professional practice regarding contaminated land and changes in applicable statutes and/or guidelines may affect the validity of this report. Consequently, the currency of conclusions and recommendations in this report should be verified if you propose to use this report more than 6 months after its date of issue.

The report does not include the evaluation or assessment of potential geotechnical engineering constraints of the site.

Interpretation of factual data

Environmental site assessments identify actual conditions only at those points where samples are taken and on the date collected. Data derived from indirect field measurements, and sometimes other reports on the site, are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact with respect to the report purpose and recommended actions.

Variations in soil and groundwater conditions may occur between test or sample locations and actual conditions may differ from those inferred to exist. No environmental assessment program, no matter how comprehensive, can reveal all subsurface details and anomalies. Similarly, no professional, no matter how well qualified, can reveal what is hidden by earth, rock or changed through time.

The actual interface between different materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions.

For this reason, parties involved with land acquisition, management and/or redevelopment should retain the services of a suitably qualified and experienced environmental consultant through the development and use of the site to identify variances, conduct additional tests if required, and recommend solutions to unexpected conditions or other unrecognised features encountered on site. Tetra Tech Coffey would be pleased to assist with any investigation or advice in such circumstances.

Recommendations in this report

This report assumes, in accordance with industry practice, that the site conditions recognised through discrete sampling are representative of actual conditions throughout the investigation area. Recommendations are based on the resulting interpretation.

Should further data be obtained that differs from the data on which the report recommendations are based (such as through excavation or other additional assessment), then the recommendations would need to be reviewed and may need to be revised.

Report for benefit of client

Unless otherwise agreed between us, the report has been prepared for your benefit and no other party. Other parties should not rely upon the report or the accuracy or completeness of any recommendation and should make their own enquiries and obtain independent advice in relation to such matters.

Tetra Tech Coffey assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report.

To avoid misuse of the information presented in your report, we recommend that Tetra Tech Coffey be consulted before the report is provided to another party who may not be familiar with the background and the purpose of the report. In particular, an environmental disclosure report for a property vendor may not be suitable for satisfying the needs of that property's purchaser. This report should not be applied for any purpose other than that stated in the report.

Interpretation by other professionals

Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced environmental consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see how other professionals have incorporated the report findings.

Given Tetra Tech Coffey prepared the report and has familiarity with the site, Tetra Tech Coffey is well placed to provide such assistance. If another party is engaged to interpret the recommendations of the report, there is a risk that the contents of the report may be misinterpreted and Tetra Tech Coffey disowns any responsibility for such misinterpretation.

Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, laboratory data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs, field testing and laboratory evaluation of samples. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

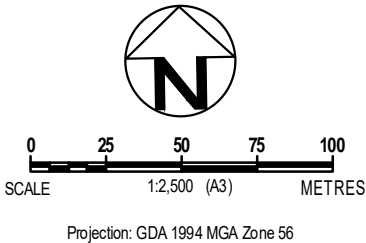
Responsibility

Environmental reporting relies on interpretation of factual information using professional judgement and opinion and has a level of uncertainty attached to it, which is much less exact than other design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. As noted earlier, the recommendations and findings set out in this report should only be regarded as interpretive and should not be taken as accurate and complete information about all environmental media at all depths and locations across the site.

APPENDIX A: FIGURES



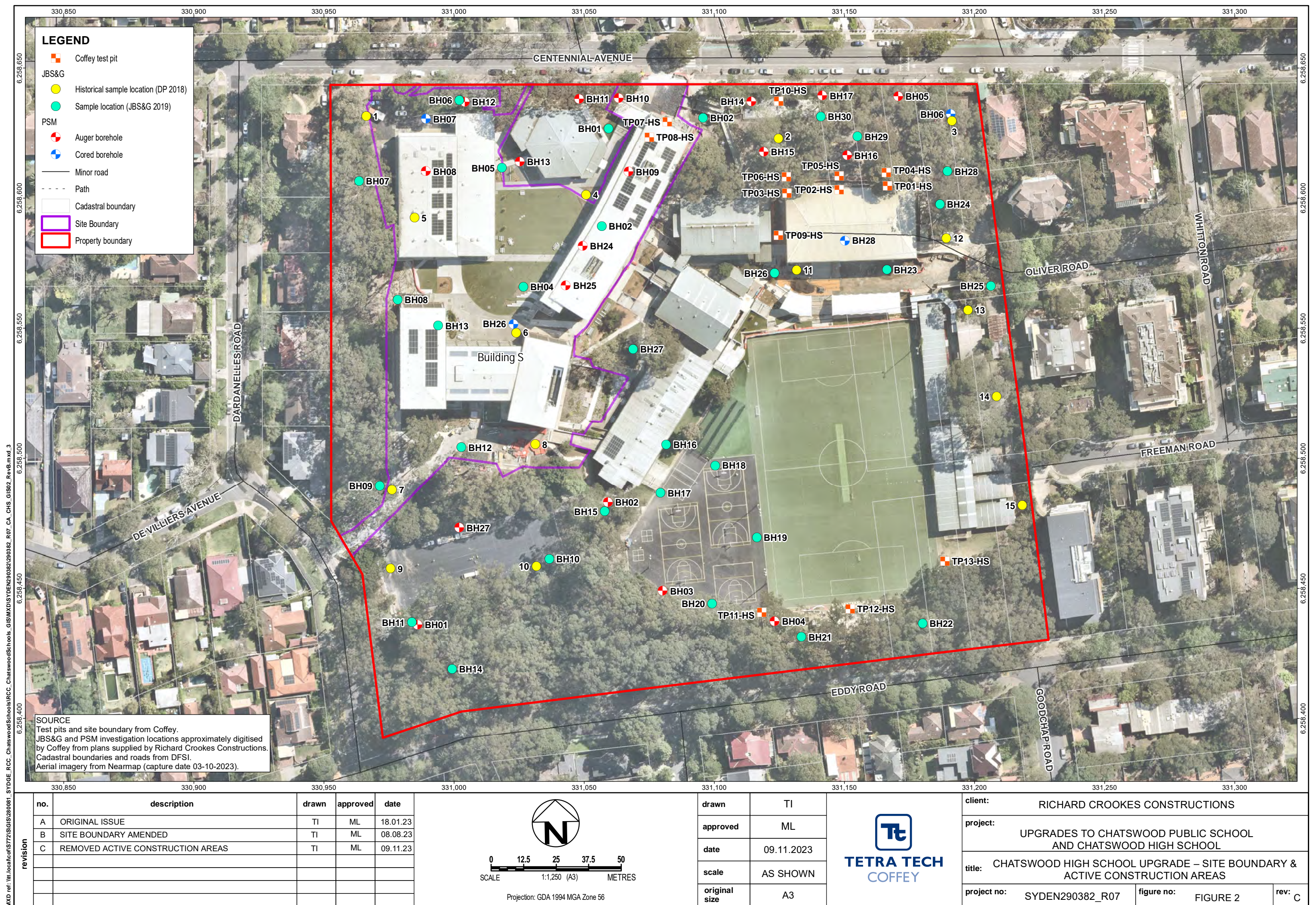
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|----------|-----|----------------|--|--|-------|----------|----------|
| | A | ORIGINAL ISSUE | | | EM | ML | 18.01.23 |
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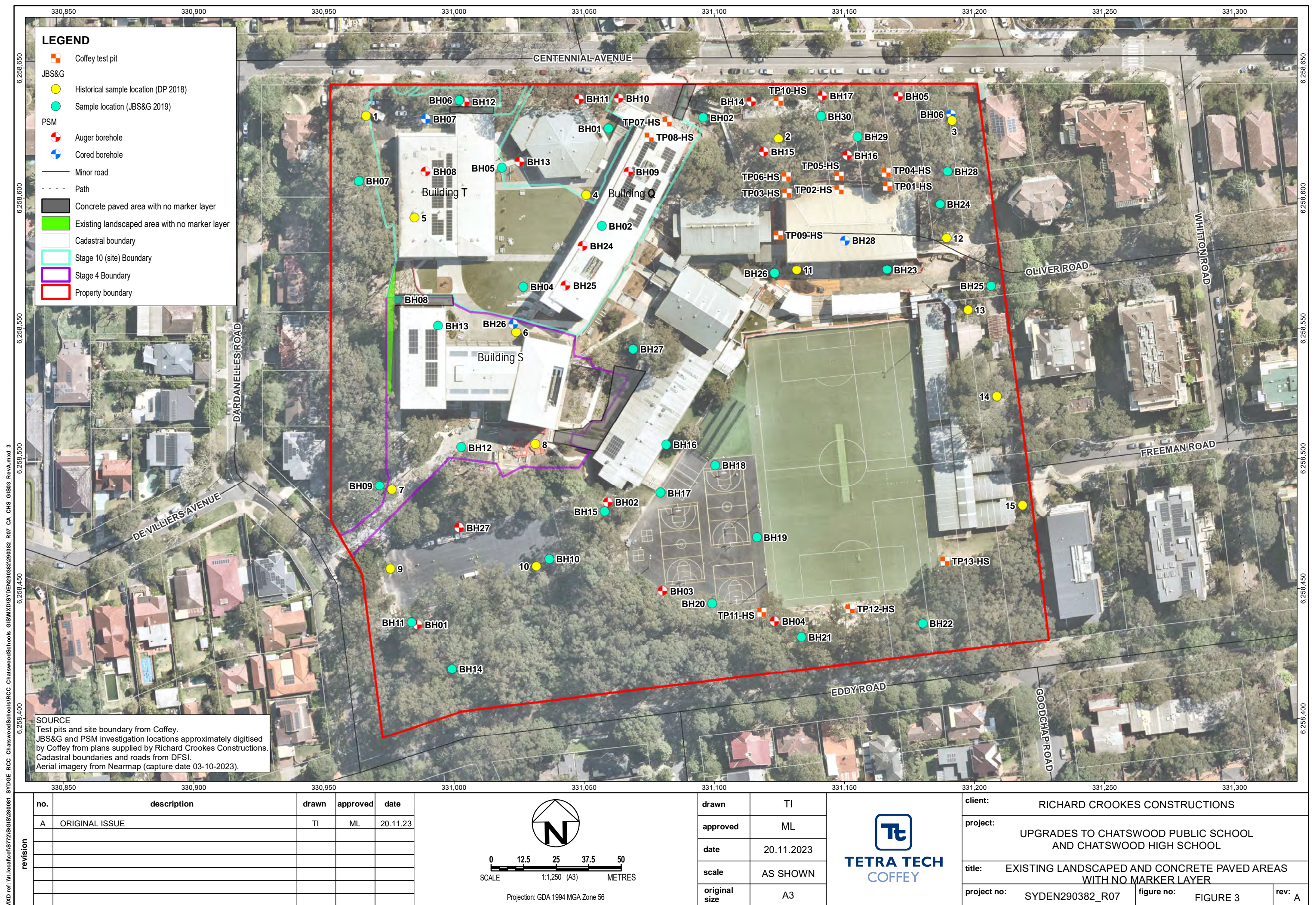


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| drawn | EM |
| approved | ML |
| date | 18.01.2023 |
| scale | AS SHOWN |
| original size | A3 |



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|-------------|-----------------------------------|------------|----------|
| client: | RICHARD CROOKES CONSTRUCTIONS | | |
| project: | UPGRADES TO CHATSWOOD HIGH SCHOOL | | |
| title: | PROPERTY BOUNDARY PLAN | | |
| project no: | SYDEN290382_R07 | figure no: | FIGURE 1 |
| | | rev: | A |





APPENDIX B: CAPPING LAYER SURVEY INFORMATION

LEGEND:

✕ MARKER LAYER SPOT HEIGHT

✕ TRENCH INVERT SPOT HEIGHT

✕ CAPPING LEVEL SPOT HEIGHT

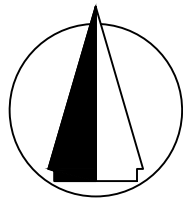
NOTE:

HEIGHTS ARE AHD AND HAVE BEEN ADOPTED USING
SSM 36739.

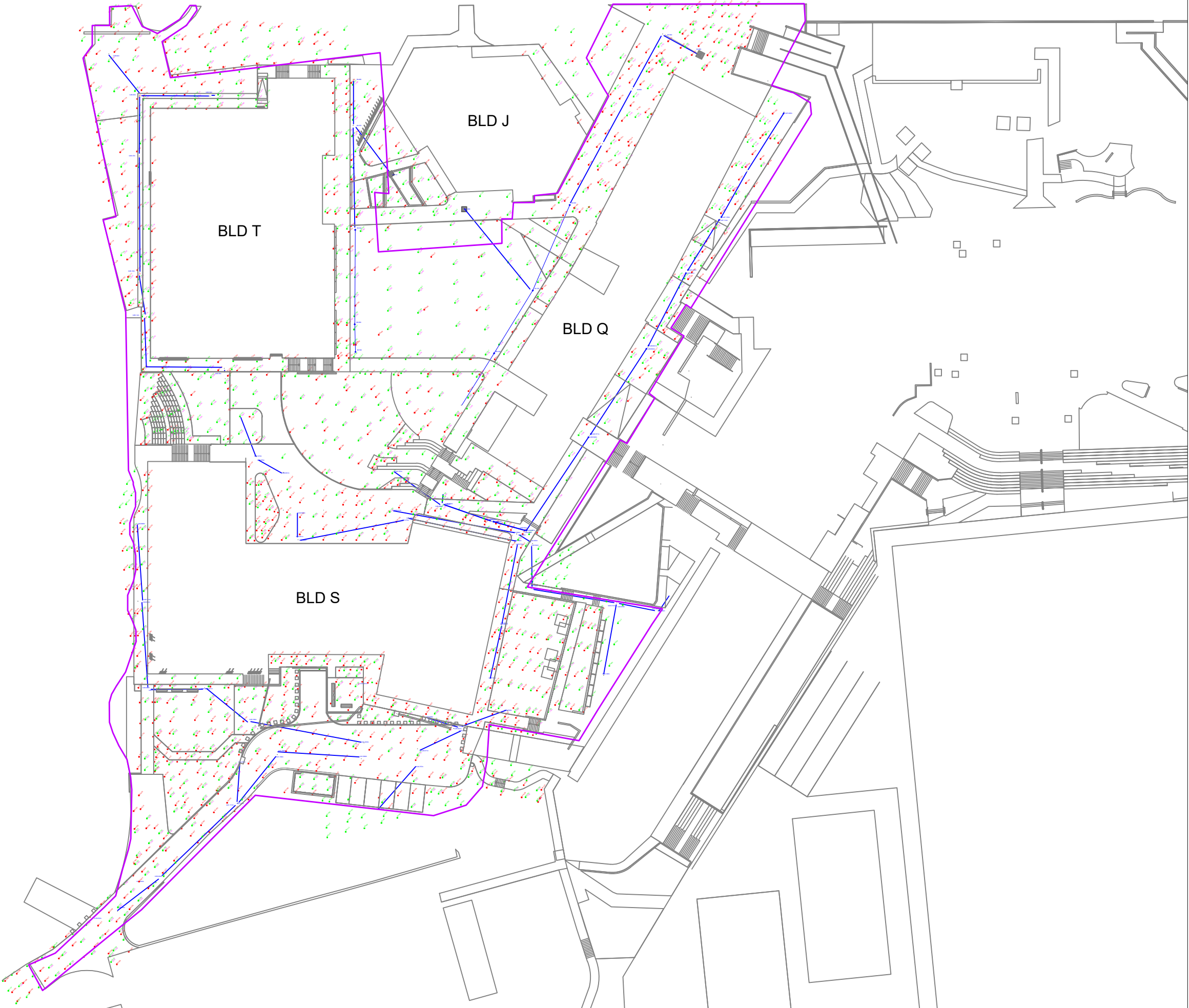
SURVEY INFORMATION OVERLAID ON
OC_S18-036_3000_GRADING PLANS (CENTENNIAL AVE)

DATE OF SURVEY: 22/12/22 - 20/10/23

NORTH



MARKER LAYER SURVEY
HEIGHT DIFFERENCE
CAPPING LAYER SURVEY
SERVICE
SITE BOUNDARY LINE



ALL INFORMATION CORRECT AT TIME OF SURVEY, TSS
TAKES NO REASONABILITY FOR ANY CHANGES MADE
THEREAFTER.


BACKCLOTH FOR VISUAL PURPOSES ONLY

CONTAMINATION BOUNDARY TAKEN FROM PDF
SYDEN2903852_REV03

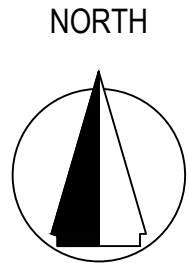
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| 7 | 19/10/23 | S & Q AREA DETAIL | RK | RK |
| 8 | 20/10/23 | CONTAMINATION BOUNDARY ADD | RK | RK |



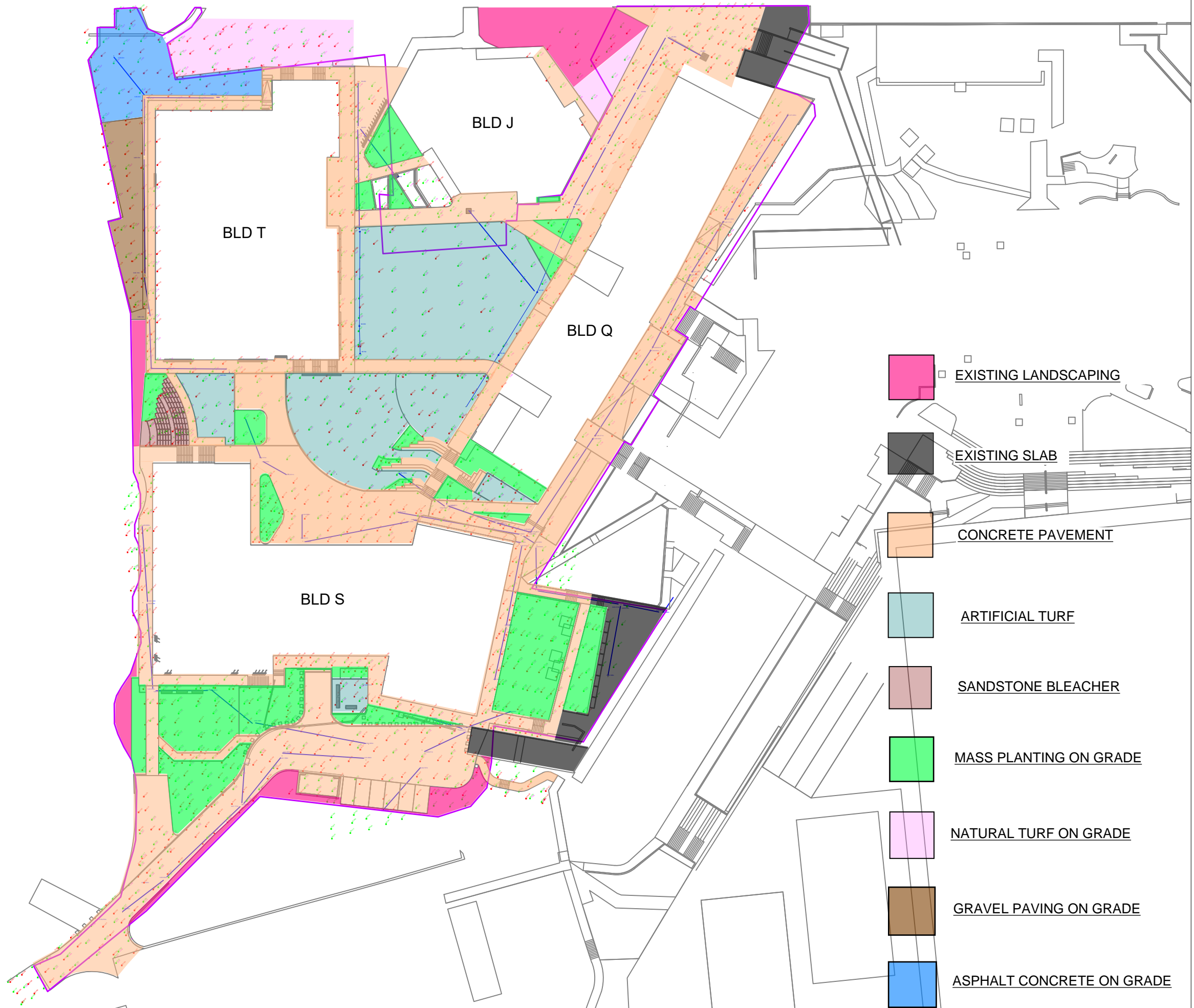
**TSS TOTAL SURVEYING
SOLUTIONS**
1300 877 000 info@totalsurveying.com.au



| | | | | | | | |
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| TITLE: | HIGH SCHOOL MASTER CAPPING SURVEY | SCALE | NTS | | | REV. | A3 |
| | | SHEET | 1/1 | | | 8 | |

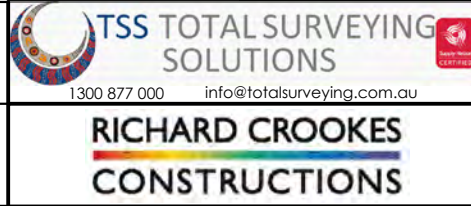



MARKER LAYER SURVEY
HEIGHT DIFFERENCE
CAPPING LAYER SURVEY
SERVICE
SITE BOUNDARY LINE



CONTAMINATION BOUNDARY TAKEN FROM PDF
SYDEN2903852_REV03

| | | | | |
|----------|----------|--------------------------------|-------|---------|
| | | | | |
| 6 | 09/10/23 | ADDITIONAL CAPPING AREAS ADDED | RK | RK |
| 7 | 19/10/23 | S & Q AREA DETAIL | RK | RK |
| 8 | 20/10/23 | CONTAMINATION BOUNDARY ADD | RK | RK |
| REVISION | DATE | DESCRIPTION | DRAWN | CHECKED |



| | | | | | |
|----------|---|-------------------|---|----------|-------|
| PROJECT: | CHATSWOOD HIGH SCHOOL | DRAWING NUMBER | | CHECKED | DRAWN |
| | | 202151.9035 REV 8 | | RK | RK |
| ADDRESS: | 24 Centennial Ave, Chatswood | DATUM | SOURCE | SURVEYED | QA |
| | | AHD | MGA | RK | QA |
| TITLE: | HIGH SCHOOL MASTER CAPPING SURVEY | SCALE |  | REV. | A3 |
| | | NTS | | | |
| | | SHEET 1/1 | | 8 | |

APPENDIX C: DESCRIPTION OF ROLES & RESPONSIBILITIES TO IMPLEMENT EMP

A summary of environmental management responsibilities in relation to the implementation of this EMP is outlined below.

Table C.1: Summary of EMP responsibilities.

| Role | Responsibility |
|---|---|
| DoE Asset Management Directorate | <p>Overall responsibility for the implementation of this EMP and maintain capping layer installed across the site.</p> <p>Conduct periodic reviews of the EMP to ensure it remains current and conforms to the environmental objectives and legal requirements.</p> |
| DoE Appointed Facility Manager | <p>Be familiar with the potential risks posed by disturbance of capped contamination at the site (Refer to Section 3 of this EMP) and be aware of the existing conditions at the site and controls in place to manage contamination.</p> <p>Be responsible for the operational implementation of the EMP including the following tasks:</p> <ul style="list-style-type: none"> • Ensure the EMP is kept up to date, as required. • Ensure capping layers are regularly inspected and repaired, if required. • Make this EMP available to maintenance workers/contractors undertaking subsurface works that breach the marker layer and construct deep excavations. • Review and approve works to be undertaken by maintenance workers/contractors undertaking subsurface works that breach the marker layer. • Ensure that contractors and employees undertaking subsurface works on the site are fulfilling the protection/management responsibilities for the work as per the EMP. • Induct maintenance workers/contractors onto the EMP prior to works commencing that may disturb or breach the capping layer. • Document unexpected finds and follow up any corrective actions for non-conformance to the EMP. • Confirm and sign off that capped surfaces that are disturbed during future maintenance works are reinstated appropriately. <p>The Facility Manager may seek technical guidance from a suitably experienced practitioner who understands DoE's overall management process of contamination at schools, and who has the technical knowledge and experience to interpret and implement the requirements of this EMP.</p> |
| Contractor carrying out subsurface works | <p>Contractors / intrusive maintenance workers at the site undertaking works that may/will breach the marker layer shall:</p> <ul style="list-style-type: none"> • Prepare Safe Work Method Statements (SWMS) for high risk construction activities prior to commencement of works and liaise with the Facility Manager to seek his/her approval of the SWMS. The SWMS shall be appropriate to the work activities and define relevant Emergency Contacts. • Obtain permit to work from the Facility Manager, as required for the work being carried out. • Sufficiently assess activity specific environmental and health and safety risks associated with the work. • Induct all personnel undertaking the works to the requirements of this EMP, and the SWMS approved by the Facility Manager. |

| Role | Responsibility |
|--|---|
| | <ul style="list-style-type: none">• Comply with and implement control measures in accordance with this EMP and SWMS during the works.• Respond to and manage environment, health and safety incidents, and promptly notify the Facility Manager of such incidents.• Comply with this EMP and applicable legislation and regulations during the works.• Restore works area to a safe condition, with capping layers reinstated on a like for like basis, unless otherwise agreed with the Facility Manager. <p>Document the works completed, including works undertaken to reinstate the capping layer.</p> |
| Environmental Consultant / Licensed Asbestos Assessor | <ul style="list-style-type: none">• Assist with the implementation of this EMP and undertake works in accordance with this EMP when called upon by the Facility Manager, as required.• Update the EMP (as instructed by the Facility Manager) to reflect any significant changes to site conditions following any construction, maintenance and remediation works that may be undertaken, or as a result of regulatory changes that applies to the site. |

APPENDIX D: CAPPING LAYER INSPECTION / REINSTATEMENT CHECKLIST

INSPECTION/REINSPECTION CHECKLIST

| Date of Inspection | Name (print) | Position | Company | Signature |
|--------------------|--------------|----------|---------|-----------|
| | | | | |

| Item | Yes/No/Not Applicable | Observations | Corrective Actions | | |
|--|-----------------------|--------------|----------------------------|---------------------------------------|------------------------|
| | | | Corrective Action Required | Name of person responsible for action | Date to be implemented |
| <u>Hard Surface Caps</u> Is there any significant damage/cracks to the hard surfaces? | | | | | |
| <u>Soft Surface Caps</u> Is there any erosion or ground depressions of soils/soft capping materials visible? | | | | | |
| Is the orange geofabric marker layer visible? | | | | | |
| Additional Observations / Comments | | | | | |

CAPPING REINSTATEMENT CHECKLIST

| Date of Inspection | Name (print) | Position | Company | Signature |
|--------------------|--------------|----------|---------|-----------|
| | | | | |

| Item | Comment |
|--|--------------------|
| Location of capping reinstatement | |
| Describe the ground condition at the completion of capping (i.e. what is the surface finish)? | |
| Has waste been stored appropriately for offsite disposal or disposed off-site? If no, provide details. | Yes/No |
| Is the ground surface free of contamination? If no, provide details. | Yes/No |
| Has the capping layer been reinstated appropriately? If no, provide details. | Yes/No |
| Further action required? If yes, provide details. | Yes/No Details: |
| Additional Observations / Comments | |