

Construction Environmental Management Plan (CEMP)

Darcy Road Public School

98A Darcy Road

Wentworthville NSW2145

E-PLAN-03 (March 2024) | Approved by Andrew Andreou
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Contents

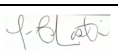
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1. Introduction

1.1 Project Information Table

Project information table				
Project name	Darcy Road Public School			
Location	98A Darcy Road, Wentworthville NSW 2145			
Client	The Crown in right of The State of New South Wales through the NSW Department of Education.			
Duration of contract	Milestone 1: 66 weeks & Milestone 3: 28 weeks			
Taylor contacts information				
Company name	Taylor Construction Group Pty Ltd			
ABN	25 067 428 344			
Address	Level 16, 100 Pacific Highway, North Sydney 2060			
Telephone and fax	Ph.: 02 8736 9000 Fax: 02 8736 9090			
Position	Contact name	Phone numbers		
Chief Executive Officer	George Bardas	(02) 8736 9000		
General Manager – New Build	Tim Christie	(02) 8736 9000		
Senior Project Manager*	*Fred Sedighi	0431 070 846		
Senior Site Manager	Glenn Harris	0448 501 340		
The Head Of WHS&E	Andrew Andreou	0404 492 614		
Safety Advisor	Michael Mistillis	0401 518 249		
Quality & Compliance Manager	Reza Pirmoradi	(02) 8736 9000		
Senior Contract Administrator	Kevin Kim	0435 713 155		
Contract Administrator	Fara Alavi	0406 083 556		
Senior Project Engineer	TBC	0481 135 230		
Senior Design Manager	Katherine Barrionuevo	0428 972 865		
Senior Services Design Manager	Paul Leamore	0406 752 176		
Foreman/Leading Hand	Liam Harvey	0411 810 750		
Graduate Site Engineer	Dorna Faghireh	0449 270 101		
Document control	Name	Position	Signature	Date
Prepared by	*Fred Sedighi	Snr Project Manager		08/03/2024
Prepared by	Fara Alavi	Contract Administrator		08/03/2024
Reviewed by:	Andrew Andreou	Head of WHS&E		08/03/2024



Reviewed by:	Tim Christie	General Manager		08/03/2024
Revised by:	Revision #	Date	Changes made	
Dorna Faghireh	2	6/12/2023	New personnel added	
Fara Alavi	3	18/01/2024	Community Communication process	
Glenn Harris	4	08/02/2024	Personnel Changes	
Fara Alavi	5	08/02/2024	Updates applied as per Client's comment	
Fara Alavi	6	08/03/2024	Update Based on SSDA	

***Afterhours Contact Person**

1.2 Project Description

The project is located at 98A Darcy Road, Wentworthville within the Parramatta Local Government Area. Darcy Road Public School comprises 11 separate allotments, which have a combined area of 23,531m², forming an irregular and consolidated development parcel. The legal description is outlined below:

- Lot 6-7 in DP 10955;
- Lot 1 in DP 782155;
- Lot A in DP 383734;
- Lot 1 in DP 122893;
- Lot 1 in DP 160134; and
- Lots 12-16 in DP 16811

The project involves the upgrade of Darcy Road Public School to accommodate 1,000 students and 25 new permanent staff. The proposal includes the following:

- Demolition of all buildings associated with the existing school, except for the existing hall which will be retained and refurbished;
- Construction of a new school comprising two new interconnected buildings up to four storeys,
- Construction of new open spaces and landscaping;
- Refurbishment of the existing hall including demolition of existing ancillary features to the eastern side of the building and extension of the hall into the existing covered outdoor learning area; and
- Extension of the existing car park.

The existing hard courts and oval within the broader Darcy Road Public School are outside of the extent of SSDA physical works. During the construction period, the majority of the school will be relocated to a temporary area using demountable buildings in accordance with a separate planning approval outside of the SSDA boundary. Upon completion of the SSDA works, Darcy Road Public School proposes to accommodate 1,000 students, assisting in alleviating current enrolment pressures within the Parramatta LGA. Darcy Road Public School will contain high quality collaborative learning spaces and associated facilities, creating future focused education through new and sustainable buildings. The completed Darcy Road Public School will offer:

- Facilities that are readily accessible and flexible to meet the demands of an evolving curriculum in line with future-focused learning principles
- Flexible and well-connected teaching and learning spaces that enable a variety of teaching and learning practices
- Spaces that are engaging and supportive for students and teachers
- Technology-rich settings with an emphasis on mobility and flexibility
- A healthy and environmentally sustainable environment



- Innovative, connected outdoor spaces that enable play and collaborative learning
- Connected open space, creating a welcoming and accessible school with indoor and outdoor teaching and learning opportunities

New teaching spaces will incorporate principles of energy efficiency and ecologically sustainable development (ESD) including:

- Passive design principles
- Thermal performance and comfort
- Natural lighting
- Water and recycling management

1.3 Purpose of the Construction Environmental Management Plan

Taylor Construction Group Pty Ltd has a documented Quality, Health, Safety and Environmental (QSE) Management System. While the management systems are integrated, key documents such as the Construction Environmental Management Plan (CEMP), the Project Safety Plan (WHSP) and the Project Management Plan (PMP, overarching plan with Quality provisions) are developed as separate documents to give each area a strong individual focus. The 'hierarchy of system documents' diagram below provides an overview of where the CEMP fits in the management system hierarchy.

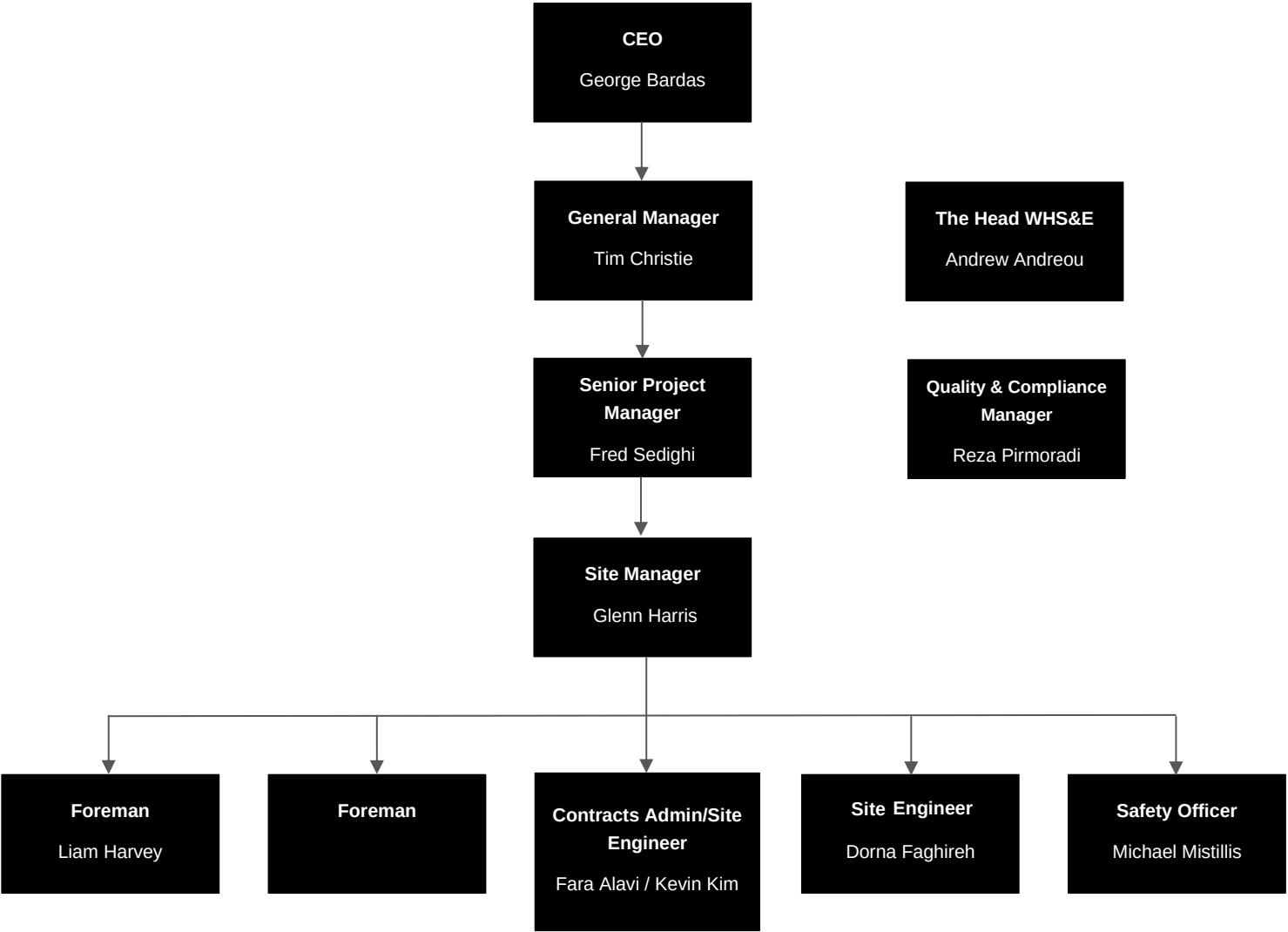
This document is a key component of the integrated QSE Management System and sets out the environmental management strategy to be adopted on site by Taylor Construction Group Pty Ltd as the principal contractor for works undertaken on this project. The purpose of this document is to provide guidance on the essential environmental requirements on a project level and reference to other important management system processes and procedures. A Construction Environmental Management Plan must be prepared for each project managed by Taylor Construction Group. The project-specific Environmental Management Plan is to be read in accordance with Taylor Construction Management Manual, Site Management Plan and Site Safety Plan.

The Construction Environment Management Plan Satisfy the Consent Condition B14. Below table shows the location of each item within this Management Plan.

Consent Condition	Location/Section
(a)(i) Hours of Work	3.3 Development Consent Conditions (Page 11)
(a)(ii) 24-hour contact details of site manager	3.3 Development Consent Conditions (Page 11) & Page 3 Contact Information
(a) (iii) management of dust and odour to protect the amenity of the neighbourhood;	3.1 Environmental Factors (Page 9 & 10)
(a)(iv) external lighting in compliance with AS 4282-2019 Control of the obtrusive effects of outdoor lighting	3.1 Environmental Factors (Page 9 & 10)
(a)(v) community consultation and complaints handling as set out in the Community Communication Strategy required by condition B9;	10.3.12 Community Communication (Page 35)
(b) an unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated communications procedure;	10.3.13 Archaeology and Heritage Management (Page 35)
(c) Construction Noise and Vibration Management Plan	Appendix 8
(d) Construction Waste Management Plan	Appendix 9
(e) Construction Soil and Water Management Plan	Appendix 10
(f) Construction Asbestos Management Plan	Appendix 11

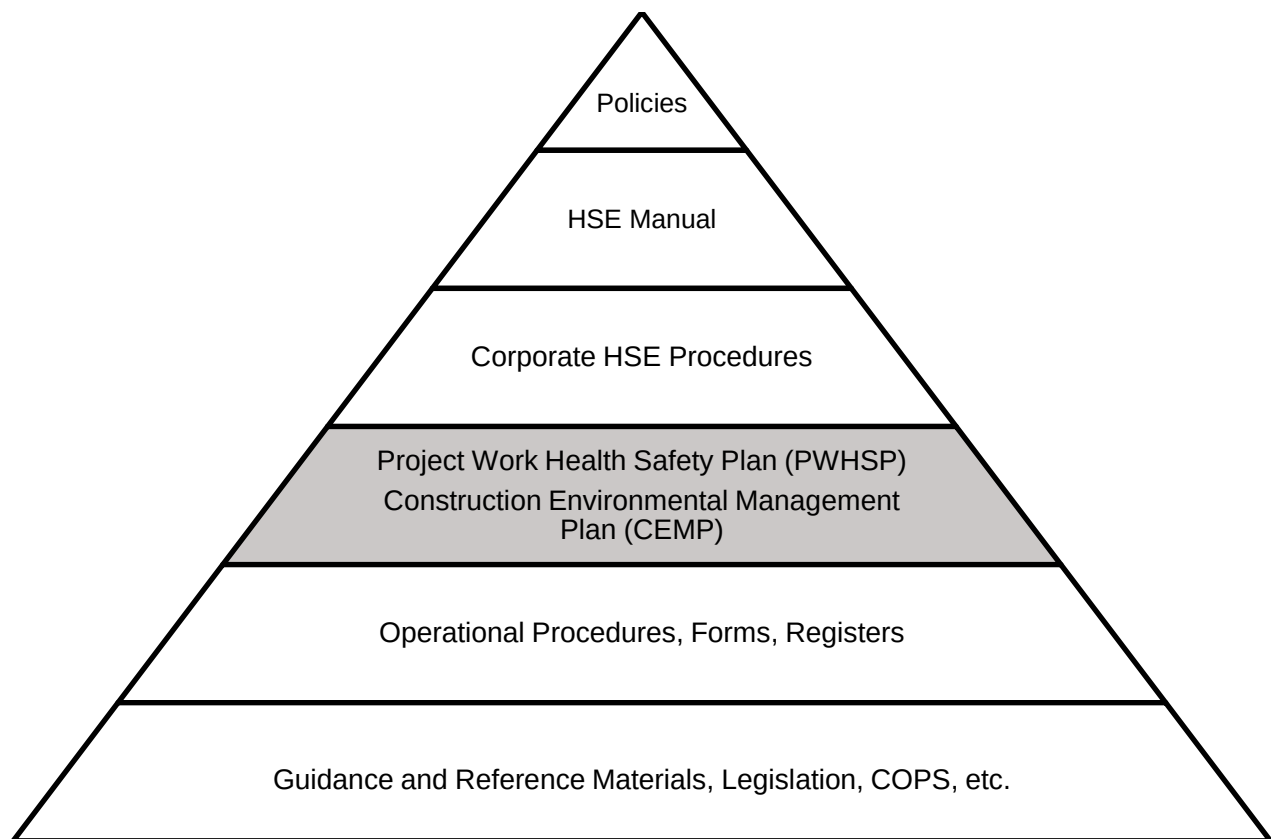


1.4 Project Organisational Structure





2. Hierarchy of HSE System Documents



QSE System documents can be found on SharePoint under the Taylor Management System (TMS), within the 'Quality' and 'HSE' folders.

The management system structure:

- Corporate
- QSE manual
- Corporate policies
- Corporate (system) procedures
- Forms and templates
- Registers and matrices
- Objectives and targets
- Organisational charts
- Certificates/ accreditations
- Training material.

HammerTech is a cloud-based software platform will used to enable teams to manage their processes effectively and maintain uniformly across all projects. This includes the collating and storing of:

- Onboarding and inductions
- Safety plans / SWMS / risk assessment
- Permits
- Pre-start and toolbox talks
- Equipment and maintenance records / schedules
- Personnel training records / competencies / licences

- 
- WHS&E inspections / audits
 - Accident and incident
 - Attendance (site diaries).

HammerTech can also be used to send out news bulletins and updates to individuals advising of alerts, meetings, industry news and updates to site rules and procedures.

Environmental Policy

Taylor has an Environmental Policy outlining our commitment to the protection of the environment. This policy can be found in Appendix 2 of this document. A copy of the Environmental Policy is to be posted on the walls or notice board at the project site.



3. Legal and Other Requirements

The processes for identifying and keeping up to date with legal and other requirements are outlined in the **Legal and Other Requirements Procedure SE-P-01**.

An **Environmental Legal and Other Requirements Register E-R-01** has been prepared and is periodically updated to ensure that it reflects current legal requirements. This register identifies the key relevant legislation and guidelines and should be attached to this plan in Appendix 7.

3.1 Environmental Factors

Factor	Objectives	Requirements
Noise Management*		
Noise/ vibration	Protect the amenity of nearby residents from noise/ vibration impacts resulting from activities associated with the proposed or existing development by ensuring that noise/ vibration levels meet statutory requirements and acceptable standards.	– Identification of sources of noise/ vibration and estimates of project-wide noise. – Ensure that noise and vibration levels meet acceptable standards and that an adequate level of service, safety and public amenity is maintained. – Propose measures to manage and/ or mitigate impacts.
Water Management*		
Surface water quality	Maintain or improve the quality of surface water to ensure that existing and potential uses, including ecosystem maintenance, are protected.	– Details of site drainage, hydrocarbon use, disposal of plant site waste (including sewage), dewatering, and fate of water used/ pumped. – Incorporate measures and/ or operating procedures to ensure that storm water run-off from the site reflects patterns, volumes and quality that exist prior to development, as far as reasonably practicable. – Drainage lines are to be naturalised as much as possible and should enhance the ecological values and recreational opportunities. – Propose measures to manage and/ or mitigate impacts.
Groundwater quality	Maintain or improve the quality of groundwater to ensure that existing and potential uses, including ecosystem maintenance, are protected.	– Describe water requirements for any on-site processing. – Incorporate measures and/ or operating procedures that will minimise the demand of the development on potable water supplies. – Ensure that no contaminated water, including those containing sediments, leaves the site. – Propose measures to manage and/ or mitigate impacts.
Air management		
Air	Ensure that potential air pollutants are contained and that activities do not impact on the natural environment.	– Identify sources of air pollution. – Propose measures to manage and/ or mitigate impacts.
Particulates/ dust	Ensure that particulate/ dust emissions, both individually and cumulatively, meet	– Identification of sources of particulates/ dust and estimates of project-wide emissions.



	appropriate criteria and do not cause an environmental or human health problem.	– Propose measures to manage and/ or mitigate impacts.
Odour	Ensure that operations do not generate odour that causes environmental nuisance.	– Identification of sources of odour and estimates of project-wide emissions. – Propose measures to manage and/ or mitigate impacts.
Waste Management		
Solid/ liquid waste	Ensure that wastes are contained and isolated from land, ground and surface water surrounds and treatment or collection does not result in long-term impacts on the natural environment.	– Identify sources of solid and liquid waste and estimate the proposed amount generated. – Propose measures to manage and/ or mitigate impacts.
Contaminated Land and Water		
Land	Ensure that existing or proposed activities do not discharge to land.	– Identify activities that have the potential to discharge to land. – Propose measures to manage and/ or mitigate impacts. – external lighting in compliance with AS 4282-2019 Control of the obtrusive effects of outdoor lighting
Surface water	Ensure that existing or proposed activities do not discharge to surface waters.	– Identify activities that have the potential to discharge to surface waters. – Propose measures to manage and/ or mitigate impacts.
Groundwater	Ensure that existing or proposed activities do not discharge to groundwater.	– Identify activities that have the potential to discharge to groundwater. – Propose measures to manage and/ or mitigate impacts.
Hazardous Materials Management		
Scheduled wastes	Ensure scheduled wastes are specially treated for their destruction.	– Identify scheduled wastes and describe the treatment of their destruction. – Propose measures to manage and/ or mitigate impacts.
Resource storage	Ensure that chemicals and other potentially harmful resources used in the manufacturing process are stored and disposed of correctly.	– Describe the use and management of chemicals and other potentially harmful resources. – Propose measures to manage and/ or mitigate impacts.
Compressed/ liquid gas	Ensure the suitable storage of compressed/ liquid gas.	– Describe the use and management of compressed/ liquid gas. – Propose measures to manage and/ or mitigate impacts.

3.2 Specific Undertaking from Formal Environmental Impact Assessment

- Darcy Road Public School - Environmental Impact Statement – Jan2023
- Environmental - Site Assessment – Dec 2022
- Surface Water and Groundwater Impact Assessment – Jan 2023
- Noise and Vibration Impact Assessment – Dec 2022



- Arboriculture Impact Assessment – Dec 2022
- Traffic and Transport Impact Assessment – Jan 2023

3.3 Development Consent Conditions

Consent working hours are:

Day	Start Time	Finish Time
Monday to Friday	7:00 am	6:00 pm
Saturday	8:00am	1:00pm
Sunday and Public Holidays	No Work	

NOTE: The Afterhours Contact is Fred Sedighi, Senior Project Manager, Phone number: 0431 070 846.

Please refer to Section 1.3 of this Construction Environmental Management Plan for relevant consent condition.

3.4 Environmental Protection License or Other Approvals

Include any Environmental Protection License details below.

- Asbestos removal licence
- Work safe approval for demolition
- Worksafe approval for asbestos removal

References:

- NSW Environmental Management System Guidelines 2015.
- Legal and Other Requirements Procedure SE-P-01.
- Environmental Legal and Other Requirements Register E-R-01.
- Asbestos management plan for NSW Government schools Oct 2020 - DN/15/00038



4. Environmental Risk Identification and Assessment

Standard ISO 14001 requires that environmental aspects relating to the organisation's activities, products and services are identified and those aspects that can have a significant impact on the environment, determined. At Taylor, the environmental aspects relating to general construction activities have been identified through a risk assessment workshop attended by key project and site managers and an environmental consultant. The aspects, impacts, risk assessment outcomes and generic controls are documented in the **HSE Risk Register HSE-R-01**. Detailed requirements for risk assessments (environmental and OHS) are described in **Risk Assessment Procedure SE-OP-03**.

4.1 Environmental Risk Assessment

The methodology for risk assessments is based on the requirements described AS/NZS 4360 (Risk Assessment) and HB203 (Environmental Risk Assessment).

Taylor's procedure requires an initial Project Risk Assessment to be undertaken at the commencement of each project. The risk assessment is to be conducted in the form of a workshop and is to include the Project / Site Manager, HSE Manager, key members of the project team and, to the extent required, key subcontractors, and is to be recorded on form **HSE-R-01 HSE Risk Register**.

The HSE Risk Register is to be developed to address both legal and other requirements covered in this plan and is to be referenced to implement systems and work practices that will eliminate or minimise the likelihood of injury, illness or incident occurring.

When developing the project HSE Risk Register, members of the workshop will take into consideration available information which is relevant to the works and is contained in any published copies of the below documents:

- HSE acts.
- WHS regulation.
- Australian / National Standards.
- Codes of practice.
- Available internal and external industry bulletins/alerts.
- Industry reports.

This will ensure members of the workshop identify and document any known or foreseeable hazards associated with that task.

The completed Environmental Risk Assessment can be found in Appendix 13 of the project HSE Plan (**WHS-PLAN-02**).

References:

- SE-P-03 Risk Assessment Procedure.



5. Objective and Targets

Objectives and targets are set at a corporate level. They are monitored and measured to ensure that Taylor continually improves our environmental performance. To ensure that we meet our corporate objectives and targets, key performance indicators (KPIs) are set at a project level and reported to management monthly.

Objectives	Targets
Effective site environmental controls.	– Achieve alignment with Taylors and Client expectations in relation to best practice control measures. – Fulfil environmental obligations.
Increase amount of waste being recycled, reduce waste cost.	– Eighty-five per cent (85%) of waste to be recycled.
Environmental performance.	– Zero major environmental incidents and no breaches. – Zero infringement notices. – All environmental spills to be reported to Taylor Construction within 2 hours of occurrence. – Environmental inspection completed weekly and documented in SE-F-02 HSE Inspection Checklist (more often if required).
Reduce the amount of environmental impact our operations have on the environment.	– Environmental issues identified and controlled prior to causing negative impacts on the project or on the environment.
Effective implementation of the environmental system.	– Eighty per cent (80%) or better internal audit results. – Full compliance with planning approval requirements.
Community issues carefully handled.	– Zero valid complaints. All complaints reported to Taylor's representative.



6. Roles and Responsibilities

All persons working for and on behalf of Taylor have responsibilities in relation to ensuring that environmental issues are appropriately managed. Generic WHS and environmental responsibilities are outlined in the **Roles, Responsibilities and Authorities Procedure QSE-P-06**.

Subcontractors

The subcontractor shall be required to comply with all applicable work health, safety and environmental legislation, including any additional Taylor's requirements, whilst engaged on a Taylor-managed project. The subcontractor shall be responsible to communicate any relevant environmental information to their personnel (workers) who are engaged in carrying out the work or providing material to the job site, including any secondary subcontractors or sole traders engaged by them and approved by Taylor.

Subcontractor's minimal environmental requirements:

- Has the subcontractor identified in the SWMS environmental hazards and controls in relation to the work task (where required), i.e. refuelling plant and equipment on site, nuisance dust controls, nuisance noise, waste management (off-cuts), rubbish, concrete wash-out?
- Have hazardous substances or dangerous goods to be used on site by the subcontractor been identified?
Note: the subcontractor will need to provide copies of relevant Safety Data Sheets (SDS) for all materials and/ or hazardous substances or dangerous goods to be used on site and note reference to training of employees in the SDS prior to first use and controls listed in the SWMS.

Taylor Construction Personnel

For this project, the key roles and specific responsibilities of our managers, supervisors, and site personnel regarding environmental management on site are outlined below. Project-related management and staff are required to sign off that they have read and understood their responsibilities.

6.1 Directors

Directors are responsible for:

- Defining Taylor Construction workplace WHS&E policies and setting their objectives.
- Acquiring and keeping up to date with knowledge of environmental matters relevant to the organisation.
- Gaining an understanding of the nature of the operation of the business or undertaking and general environmental issues associated with those operations.
- Providing leadership that promotes and maintains Taylor's determination to continually improve its performance in workplace health safety and the environment.
- Demonstrating genuine interest in workplace health and safety and the environment; supporting all project teams to encourage incident prevention.
- Ensuring that there is available for use and used by those engaged in the business or undertaking, appropriate resources and processes to eliminate or minimise risks to the environment and non-compliance with licences during the conduct of the business or undertaking.
- Ensuring that people engaged in the business or undertaking have appropriate processes for receiving and considering information regarding environmental incidents, hazards, and risks, and respond in a timely way to that information.
- Ensuring that those engaged in the business or undertaking have in place and implement processes for complying with any duty or obligation of the organisation under the Act, including complying with licence conditions and notices served.



6.2 Chief Executive Officer

The Chief Executive Officer's responsibilities include:

- Informing the board of all events within, or which reasonably should be within, his/her knowledge or awareness, which may or do have a material impact on the organisation's activities or well-being.
- Monitoring and interpreting the external environment in order to continually position the organisation in its markets to best advantage.
- Maintaining awareness of political, governmental, business, and industry components of the external environment, on a local, national, and international level.
- Reviewing environmental objectives and targets to ensure compliance with our environmental commitments and achieve continuous improvement in our environmental performance.
- Working proactively with our clients, regulators, and other community stakeholders to enable environmental issues to be addressed at an early stage of development.
- Monitoring the activities which are undertaken by employees and subcontractors are done so in a manner that is consistent with the principles of ecologically sustainable development.
- Overseeing the implementation of company procedures and policies that will prevent pollution and reduce adverse environmental impacts of our activities on the natural, built, and cultural environment.
- Setting realistic environmental objectives and targets at all relevant levels within the company and continually monitoring performance.
- Promote the efficient use of natural resources and reduce waste using the waste hierarchy – avoid, reduce, re-use, recycle and finally dispose of.
- Identifying alternative, financially viable, and sustainable courses of action to minimise environmental impacts.
- Defining Taylor Construction WHS&E policies and setting their objectives.



6.3 General Manager

General Manager is responsible for:

- Demonstrating genuine interest in workplace health, safety, and environment; supporting all project and site managers to encourage incident prevention and compliance.
- Assessing and allocating appropriate resources and equipment within the company for the effective implementation of the workplace health, safety, and environmental management systems and the management of WHS&E-related hazards/ risks relevant to the construction projects.
- Being fully briefed on the WHS&E performance and compliance of all current Taylor projects.
- Assisting in the development and implementation of continuous improvement processes for workplace environmental management
- Defining Taylor Construction WHS&E policies and setting their objectives.
-

Specific roles:

- Ensuring project teams' compliance with any licence, permit notice or order from the EPA. For example, failure to have a monitoring program at a licensed site is a breach of your licence.
- Ensure the implementation and overall effectiveness of the Taylor environmental, health, and safety programs.
- Provide visible commitment to a safe and healthy work environment by ensuring regular reviews are undertaken. Participate in WHS&E meetings and consultations regarding workplace health safety and environmental matters.
- Consider workplace health safety and environment matters with other senior members of the organisation as part of normal business practice and incorporate WHS&E into meeting agendas.
- Allow appropriate budget allocations for WHS&E management and improvement.
- Encourage and promote safety within the company by participating and openly consulting with employees with respect to their health and safety.
- Follow up with the WHS&E Manager and site teams on any compliance breaches or external authority notices issued to projects and or subcontractors.
- Report on critical incidents which then embed lessons learned and system improvement will demonstrate the board's commitment to environmental responsibility.
- Participate in periodic compliance inspections/audits to review the effectiveness of management structures and risk controls for environmental performance that are appropriate and remain effective.

Name:	Tim Christie
Signed:	
Date:	08/03/2024



6.5 Construction Manager

The Construction Manager is responsible for:

- Demonstrating genuine interest in workplace health and safety; supporting all the project/ site managers to encourage environmental incident prevention.
- Confirm that legislative obligations are met, and that Taylor's Environmental Policy is effectively implemented throughout all company construction projects under their control.

Specific roles:

- Provide leadership in the development of project teams to ensure the fostering of the business culture and approach to doing business with our clients, consultants, and subcontractors.
- Attend sites on a regular basis to ensure compliance with workplace environmental and programming requirements of both the head contract and the company's systems.
- Provide visible commitment to a safe and healthy work environment by ensuring regular reviews are undertaken, and by participating in safety and health meetings and consultation regarding WHS&E matters.
- Ensure that the Project / Site Manager has developed and implemented systems, which will ensure subcontractors/ suppliers engaged by the company comply with the health safety management and environmental systems and the relevant HSE legislation.
- Consider workplace health safety and environmental matters with other senior members of the organisation as part of normal business practice and incorporate WHS&E into meeting agendas.
- Support the Head of WHSE in ensuring Project / Site Managers have developed and implemented systems that will ensure subcontractors and suppliers engaged by the company comply with the WHS&E management systems and the relevant legislation.
- Respond to non-conformance by any member of the company who fails to discharge their duties as set by the Responsibility Statement and actively participate in dispute resolution where required.
- Participating in periodic compliance inspections/audits to review the effectiveness of management structures and risk controls for environmental performance are appropriate and remain effective.
- Where events or non-compliance occurs, all reasonable and appropriate precautions are reviewed and as necessary, ensure new controls are designed and implemented.

Name:	Fred Sedighi
Signed:	
Date:	08/03/2024

Name:	Glenn Harris
Signed:	
Date:	08/03/2024

**** If no construction manager has been allocated to the project these roles and responsibilities will be shared by the project manager and the site manager.



6.6 Project Manager

The Project Manager is responsible for:

- Ensuring that environmental, health and safety obligations are carried out by everyone working in their operations.
- Communicating to employees, workers, and visitors that health and safety and concern for the environment are top priorities on Taylor projects and that everyone shares in the obligation to perform work in a safe, healthful, environmentally protective manner.
- Analysing work procedures to identify hazards; ensuring measures are implemented to eliminate or control those hazards.
- Ensuring the PCBU has implemented processes for complying with any legal duty or obligation.
- Curtail or stop work being carried out under their authority if they reasonably believe that continuation of the work poses an imminent danger to health or safety. Upon directing that work be curtailed or stopped, if the situation cannot be corrected immediately, the Manager must notify the WHS&E Manager
- Ensuring that self-assessment inspections are performed regularly, that records are retained and that deficiencies identified in any inspection (self-assessment or HSE inspections) are addressed.
- Consulting with Taylor's Construction Manager and HSE Manager to ensure enough resources are allocated to the project to comply with legislative and Taylor's WHS&E requirements.
- Ensuring compliance with safety legislation, regulations, licensing conditions, and authorities' requirements relevant to all construction work.
- Ensuring Taylor's site supervision is maintained throughout all hours of operation and those assigned with supervisory roles are competent and authorised to do so (e.g., PM, SM, or foreman).
- Ensuring incidents are investigated and appropriate action taken as required by Taylor's site safety plan requirements in consultation with the WHS&E Manager.
- Providing a visible commitment to a safe and healthy work environment by ensuring regular reviews are undertaken, and by participating in health and safety meetings and consultation regarding WHS&E matters.
- Ensure safety notices issued and/ or visits made to the project by industrial representatives and/ or SafeWork NSW are reported to both the General Manager and the head of WHSE.
- Selecting appropriate subcontractors, giving due regard to their ability to comply with legislative and Taylor's WHS&E requirements.
- Owning and understanding the key project environmental issues involved.
- Participating in at least one formal site HSE inspection per month on a project under their control.
- Reporting back to Taylor's senior managers on project HSE incidents, any external authority visits, and/ or Notices issued by external authorities.
- Overseeing the development and implementation of site evacuation and emergency procedures and overseeing at least one spontaneous evacuation drill every six months and assessing the results of that drill.
- Supporting the Site Manager in the management of employee, subcontractor, and supplier performance in complying with Taylor's environmental plan and the site-specific rules for the project.
- Be familiar with the emergency plan, the emergency assembly area, and emergency coordinators for their project and participate in emergency drills.
- Promoting and overseeing procurement standards for goods and services that help minimise environmental hazards.
- Where required, engaging with the local community to understand their environmental concerns and impacts linked to the organisation's operations.
- Ensuring compliance with Taylor's accredited QSE systems is maintained and implemented across all Taylor-managed projects under their control.

Name:	Fred Sedighi
Signed:	
Date:	08/03/2024



6.7 The Head Of WHS&E

The Head Of WHS&E is responsible for:

- Overseeing the development and implementation of Taylor policies and procedures related to environmental health and safety that provide additional support for the environment.
- Developing and maintaining electronic systems and technology solutions related to environmental health and safety.
- Disseminating information and providing guidance regarding compliance with federal, state, and local regulations and Taylor policies and procedures.
- Providing guidance, direction, and oversight to help ensure adherence to federal, state, and local regulations and Taylor policies and procedures instituted to protect the health and safety of employees, workers, visitors, and the environment.
- Overseeing the implementation of Taylor's health, safety, and environmental management systems throughout all Taylor activities.
- Ensuring that a systematic internal reporting system exists to guarantee that information about environmental hazards and unsafe practices is promptly conveyed to senior management and acted on.
- Maintaining a good relationship with external regulatory authorities.
- Setting targets and allocating priorities within the framework of the QSE System.
- Safeguarding compliance and maintenance of the company's third-party accreditations.
- Planning and delivering training in environmental management and/ or arranging for the appropriate internal or external trainers/ facilitators to conduct the training.
- Researching, developing, and implementing new procedures and forms, and updating the manual as required.
- Reviewing, analysing, and reporting on safety and environment project performance to Taylor's managing director, sector managers, and any party as arranged by the managing director.
- Ensuring compliance with environmental legislation, regulations, licensing conditions, and authorities' requirements.
- Ensuring Taylor's workplace health safety and environmental performance are reviewed on a regular basis (i.e., arranging for internal and external audits).
- Ensuring that periodic audits of the effectiveness of management structures and risk controls for environmental performance are conducted.
- Review internal and external (independent) audit reports and, in consultation with the directors and the project manager, develop appropriate action plans if necessary.
- Identifying environmental hazards, assessing risks, and in consultation with project teams selecting risk control measures for site-specific situations.
- When required, acting as the lead investigator in workplace incidents/ accidents, liaise with external authorities in managing them and report back to the managing director and/ or sector managers on outcomes of investigations.
- Ensuring WHS&E policies and procedures are implemented on all projects and that a specific site environmental plan is prepared and implemented for all projects.

Name:	Andrew Andreou
Signed:	
Date:	08/03/2024

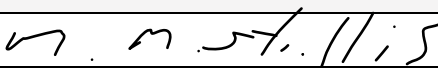


6.8 Project Safety Advisor

The Project Safety Advisor is responsible for:

- Providing a visible commitment to a safe and healthy work environment by ensuring regular reviews are undertaken, and by participating in safety and health meetings and consultation regarding WHS&E matters.
- Ensuring workplace hazards and environmental, health, and safety-related policies and procedures are communicated to employees, workers, and visitors.
- Assisting the WHS&E manager and project teams in implementing Taylor's health, safety, and environmental procedures, policies, and project systems in line with best practices and the relevant statutory legislation.
- Reporting any serious environmental incident or near miss and unexpected finds immediately to the WHS&E manager.
- Safeguarding compliance and maintenance of the company's third-party accreditations.
- Assisting project teams and subcontractors in meeting their workplace health safety and environmental obligations.
- Ensuring compliance with this project's environmental plan.
- Monitoring subcontractor's compliance with the site environmental plan, and subcontractor compliance to their Safe Work Method Statements by conducting regular task observation/ audits.
- Undertaking regular workplace inspections to identify hazards and unsafe/ unhealthy workplace conditions and practices.
- Being familiar with the emergency plan, the emergency assembly area, and emergency coordinators for the project and participating in emergency drills.
- Assisting the Site Manager / Foreman in the supervision of subcontractors.
- Ensuring WHS&E items identified by safety inspections and or audits are rectified within specified timelines in consultation with the Site Manager, and subcontractors.
- Reporting incidents and/ or identified environmental hazards and appropriate risk control measures to line managers.
- Ensuring all workplace health and safety and environment documents are maintained and filed in accordance with Taylor's filing requirements.
- Coordinating or conducting site toolbox talks and ensuring subcontractors regularly consult with their employees on matters relating to environmental issues.
- Liaising with the Project / Site Manager to implement controls on hazards identified.
- Completing Safe Work Method Statement checklists for the site (task observation).
- Collating completed contractor required forms, authority to work permits, and checklists.
- Acting site safety representative for the site (unless another person has been elected to perform this role as per the consultation statement S-F-04 WHS Consultation Statement).
- Other HSE and/ or CW's issues or activities that may require their attention.

If no safety advisor is allocated to the project, the roles and responsibilities mentioned above are to be allocated to alternative Taylor Construction persons engaged in the project who are competent or have been suitably trained to fulfill these duties.

Name:	Michael Mistillis
Signed:	
Date:	08/03/2024



6.9 Site Manager

The Site Managers are responsible for:

- Providing a visible commitment to a safe and healthy work environment by ensuring regular reviews are undertaken, and by participating in safety and health meetings and consultation regarding WHS&E matters.
- Facilitating the process to ensure the project team and the WHS&E manager are consulted and participate in the development of the project specific WHS&E risk assessment. This is to be done prior to such activities commencing.
- Ensuring that prior to the works commencing a formal assessment of the emergency control equipment requirements has been completed and that these remain effective throughout the duration of the project. (e.g., first aid, nurse call, emergency warning alarms, fire extinguishers, spill kits, lighting, and signage)
- Ensuring workplace hazards and environmental, health, and safety-related policies and procedures are communicated to employees, workers, and visitors.
- Ensuring individuals working in their operations have the proper safety equipment and personal protective equipment to perform their work safely.
- Leading or participating in formal site safety inspections weekly and record results using **SE-F-02 HSE Inspection Checklist**. Daily informal inspections should be noted in the site diary.
- **Unexpected finds** – ensure all unexpected finds are treated, reported, and managed in accordance with Taylor's unexpected finds procedure.
- **Environmental controls** – ensure all environmental controls (sediment and erosion, noise, hours of operation, etc) as mentioned by permits or building approvals are adhered to and workers are advised of these requirements during the site induction process.
- **Emergency Response and Training Plan** – contribute to the development of the ERP, ensure that all employees, workers, and others know about the plan, and communicate the importance of participating in drills and otherwise following procedures set out in the plan.
- **Groundwater protection Program** – report any hazardous materials or other pollutants spilled to or discovered in soil or groundwater to EH&S for appropriate emergency or non-emergency clean-up.
- **Hazardous material and waste management** – inform employees and workers that hazardous materials and hazardous waste, except as expressly authorized by regulations, licenses, or permits, may not be disposed of via the sewer system, or other unsafe or environmentally damaging routes; and to stress the importance of proper hazardous material/waste management.
- **Training** – ensuring that everyone working in their operations is appropriately trained to identify and mitigate potential hazards. Ensure that work requiring training is performed only by persons who have received the proper training.
- **Hazardous spill response** – upon request, provide assistance in hazardous material spill clean-up, prepare written reports about reportable releases, and notify appropriate persons about reportable spills.
- **Noise monitoring and hearing conservation** – conduct noise surveys to determine exposure levels.
- **Environmental procedures/permits** – ensure activities requiring an internal and or external permit or approvals do not commence until a permit or approval has been formally granted the user has the responsibility for providing relevant information to obtain permits, meeting permit conditions, and any responsibility. Taylor site management shares in the responsibility to advise those performing the works of Taylors' procedure and permit requirements.
- Ensuring WHS&E items identified by safety inspections and or audits are rectified within specified timelines in consultation with the Project Manager, Project Safety Advisor, and subcontractors.
- Ensuring that all plant and equipment used on Taylor sites are environmentally safe, and correctly maintained and that the operator is appropriately licensed or qualified to operate and or use that equipment.
- Utilising experience and judgment to shut down and/ or evacuate any part of the site if a major health and safety and environmental risk occur.
- Reviewing, coordinating, and implementing emergency evacuation procedures and participating in drills at specified intervals (quarterly).

Name:	Glenn Harris
Signed:	
Date:	08/03/2024



6.10 Site Foreman

The Site Foreman is responsible for:

- Implementing, through consultation with the Project Manager, the site environmental plan and procedures in accordance with WHS&E legislation, regulations, codes of practice, Australian Standards, and/ or other statutory requirements.
- Ensuring no work is undertaken on site until the relevant SWMS has been reviewed and signed off in accordance with form **SE-F-14 Safe Work Method Statement Review Form**.
- Monitoring subcontractors' compliance with the site environmental plan and subcontractors' compliance to their Safe Work Method Statements by conducting regular task observation /audits.
- Ensuring all workers and, if required, visitors, are site-inducted and aware of any environmental compliance obligations.
- Assisting with implementing and undertaking formal and proactive consultation measures between the project team and subcontractors.
- Ensuring items identified by environmental or system audits findings are rectified and closed out within specified timelines in consultation with the project manager, site manager, site safety advisor and subcontractors.
- Consulting with all persons on environmental issues, including changes to the workplace layouts and access egress points, and encourage the involvement of all personnel in achieving a safe and healthy site.
- First response in managing site-specific workplace environmental issues in the first instance, and discussing these with the project manager, site manager and/ or site safety advisor as required.
- Assisting the site manager with developing, planning, implementing, and reviewing site-specific emergency and evacuation procedures.
- Identifying any environmental hazards and assessing any risks on site and implementing risk control measures.
- Leading or participating in formal site safety inspections weekly using form **SE-F-02 HSE Inspection Checklist**. Note: informal inspections should be noted in the site diary.
- In consultation with the Project Manager and Senior Site Manager, and utilising experience and judgment, shut down and/ or evacuate any part of the site if a major environmental risk or situation occurs.
- When requested by the Site Manager participate in any environmental incident and assist with the investigating, recording, and reporting,
- Be familiar with the emergency plan, the emergency assembly area, and emergency coordinators for the project and participate in emergency drills.
- Monitoring the use of personal protective equipment (PPE) by site personnel.
- Where requested by the Site Manager, assist with monitoring of environmental issues (e.g., dust, noise, air quality)
- Assist the Site Manager with reviewing, coordinating, and implementing emergency evacuation procedures and participating in drills at specified intervals, minimum every six months.
- Ensuring that all plant and equipment used on Taylor sites are environmentally safe to use, and appropriately maintained and that the operator is correctly licensed or qualified for operating that equipment.

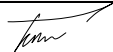
Name:	Liam Harvey
Signed:	
Date:	08/03/2024



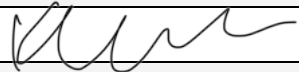
6.11 Contract Administrator / Site Engineer

The Contract Administrator and Site Engineer's responsibilities are to:

- Support the Project Manager and Site Manager in the management of employee, subcontractor, and suppliers' performance in complying with Taylor WHS&E and the site-specific rules for the project.
- Assist the project/ site manager to ensure the site environmental plans and associated documentation, including standard forms, procedures, and templates, remain current and up to date.
- Where required, assist the project and site manager with site inductions.
- Include in the subcontract agreement the requirement for subcontractors to carry out their works in accordance with the company's or subcontractor's approved QSE plans.
- Forward to subcontractors a copy of HSE subcontractor requirement, **Contractor's HSE Requirements QSE-F-15.23** (letter template), ensuring this is completed and returned by subcontractor prior to commencing.
- Discuss with the subcontractors, at the tender interview stage, their obligation for managing HSE requirements by issuing to the relevant sections of the tender interview form and ensuring this is completed by the subcontractor prior to commencing on site.
- Request and obtain from the subcontractor prior to their arrival to the site copies of their Worker's Compensation and Public Liability Certificates of Currency, environmental and or council licences and or required permits ensuring they are current and that copies are available on site.
- Ensure that all completed copies of form **Contractor's HSE Requirements QSE-F-15.23** (letter template) are returned and filed in the project files.
- Ensure that the latest copies of project plans and WHS&E risk assessments are uploaded onto the project centre, or preferred data control system used, and engaged subcontractors have access to these.
- Ensure all external complaints/ incidents are recorded on **SE-F-21 Incident Report Form** and filed in the external complaints register or HammerTech.
- Assist the Project Manager and Site Manager in the general administration of WHS&E where requested.
- Be familiar with the emergency plan, the emergency assembly area, and emergency coordinators for the project and participate in emergency drills.

Name:	Fara Alavi
Signed:	
Date:	08/03/2024

Name:	Dorna Faghireh
Signed:	
Date:	08/03/2024

Name:	Kevin Kim
Signed:	
Date:	08/03/2024



6.12 Building Cadet

The Building Cadet's health, safety, and environmental responsibilities are to:

- Provide general assistance to management on an assigned project.
- Provide administrative assistance in managing site safety, quality assurance, and environmental management systems.
- Maintain project registers and records up to date.
- Where requested, assist with site contract administration and tendering.
- Manage project document control and provide design management assistance.
- Assist the Project / Site Manager to ensure the site QSE plans and associated documentation, including standard forms, procedures, and templates, remain current and up to date.
- Fulfil responsibilities as outlined in the 'Taylor Cadet Program Guidelines, including undertaking an approved course of study at an Australian University.
- Assist the Project Manager and Site Manager in the general administration of HSE where requested.
- Monitor the use of personal protective equipment (PPE) by site personnel.
- Complete site diaries as per project administration requirements.

Name:	
Signed:	
Date:	



6.13 First Aid Officers

It is the job of the trained first aider to provide initial treatment to injured or ill employees, which is consistent with first aider's level of training and competency. Where the treatment required is beyond a first aider's level of competency, they should recommend that the employee seek immediate medical assistance.

The nominated site first aid officers shall possess the required level of competency (Senior First Aid Certificate or Occupational First Aid Certificate) and they shall be responsible for:

- Providing first aid assistance to persons ill or injured on site.
- Recording all such assistance provided.
- Liaising with the site manager and/ or site foreman to achieve first aid obligations.

First Aid Officer Records

The nominated first aider shall be relied upon to exercise a common sense approach in determining what type of injuries require a first aid report to be completed. First aid/ incident reports shall only be completed for injuries or illnesses for which first aid assistance was sorted **immediately** following an event. Employees, including subcontractors, is, seeking to report an injury or incident for which first aid assistance was not initially sort **shall not** be provided with a copy of the report unless this has been authorised by the Site / Project Manager and/ or Taylor's WHS&E Manager.

Some typical injuries that may require reporting are:

- All injuries requiring off-site medical treatment.
- Impact injuries.
- Head injuries.
- Musculoskeletal injuries.
- Open wounds (cuts).
- Eye injuries.

The first aid officers shall also be responsible for the regular maintenance and replenishment of the first aid kits and equipment. At all times during normal operations there shall be a minimum of one (1) trained first aider on site for every 25 workers.

Name:	Fred Sedighi
Signed:	
Date:	08/03/2024

Name:	Glenn Harris
Signed:	
Date:	08/03/2024

Name:	Liam Harvey
Signed:	
Date:	08/03/2024



6.14 PCBU and Workers

PCBU and Workers are responsible for:

- Attending Taylor’s site-specific induction prior to commencing work on site.
- Taking reasonable care for their individual health and safety and that of others on site, including members of the public.
- Familiarising themselves and adhering to Taylor Construction corporate policies.
- Performing only those works in which they possess the required competencies for or have been suitably trained to perform.
- Taking corrective actions to eliminate hazards within the workplace and /or reporting those hazards they cannot correct.
- Reporting all injuries to a first aid officer or supervisor.
- Cooperating with Taylor management in all requirements imposed in the interest of health, safety the environment, and wellbeing.
- Never intentionally or recklessly interfere, misusing, or remove any items and/ or equipment provided in the interest of health and safety.
- Complying with all site safety instructions and abiding by the procedures and work practices identified in the Workplace Health Safety Project Plans and/ or as directed or informed by the Site Manager / Foreman.
- Complying with all relevant workplace health and safety legislation, standards, and codes of practice.
- Reporting promptly to a Site Manager / Foreman any unsafe conditions, practices or defects discovered in any control measures, including personal protective equipment.
- Maintaining safe work practices when working with, or near, hazardous substances, so that their own health and safety, and the health and safety of those around them, is maintained.
- Using personal protective equipment (PPE) as required. The equipment should be kept clean and maintained in an appropriate manner.
- Practicing high-standard personal hygiene in and around all amenity areas such as lunch, change and toilet facilities by washing thoroughly and removing all protective clothing before eating, drinking, and smoking.
- Do not perform any activity or act that endangers or impacts the environment.

6.15 Other Personnel with Specific Environmental Responsibilities

Add any specific responsibilities here. If no specific positions or responsibilities, DELETE this section and UPDATE the table of contents.

References:

- Roles, Responsibilities, and Authorities Procedure QSE-P-06.



7. Induction

Taylor employees, including those workers engaged by or working on behalf of the subcontractors, are required to be site-inducted prior to commencing work on the site. General environmental awareness and specific environmental requirements of this CEMP must be incorporated into the site-specific induction as required.

As a minimum, inductions must include the following environmental information:

- Community issues.
- Hours of operation.
- Noise and vibration.
- Dust management.
- Traffic access.
- Washing requirements for construction plant and equipment.
- Storage and handling of fuels, oils, and other chemicals.
- Waste management: recycling, disposal, litter.
- Soil and water issues: controls, tracking of mud off-site.

Where there are significant environmental issues identified for the project, these must be incorporated into the site-specific induction. These may include but shall not be limited to (where required):

- Environmentally sensitive areas of the site (specify details in this section).
- Contaminated or Acid Sulphate soils.
- Endangered flora and fauna.
- Environmental controls and management.
- Noise emissions.
- Plant emissions.
- Archaeology and heritage management.

References:

- SE-F-11 Site Induction Form and Mandatory Safety Requirements.
- SE-F-11a Induction Register.



8. Training and Competency

All persons undertaking work on the project (employees and subcontractors) must be trained and competent to carry out their work. This includes undertaking tasks in an environmentally sound manner.

Subcontractors shall be responsible to ensure that Taylor's environmental risk management, as prescribed in [Section 10.3](#) of this plan, are adopted and controls, as contained in Taylor's **HSE-R-01 HSE Risk Register**, are implemented when developing their systems of work.

The subcontractor shall be responsible to consult and train workers under their management in the agreed environmental system. Evidence of appropriate training shall be made available by the subcontractor to Taylor upon request by a Taylor-nominated representative.

The Project / Site Manager, along with relevant members of the project team, must be made aware of the requirements of the Taylor environmental management system and shall be required to attend Environmental Awareness and Due Diligence training sessions when organised by the company.

References:

- QSE-P-19 Training, Competency, and Awareness Procedure.
- WHS-PLAN-02 Project Workplace Health and Safety Plan (PWHSP).

9. Communication

The requirements for internal and external communication are outlined in the QSE Management System Manual. The following provides essential information in relation to environmental communication on projects.

9.1 Internal Communications

Essential information relating to project environmental management will be communicated through toolbox talks and inductions.

Environmental alerts will be periodically prepared and sent to sites for posting on notice boards.

Key changes to environmental legislation will be sent by email to all project managers and site managers.

9.2 External Communications – Community

Community complaints must be reported as environmental incidents and all correspondence relating to the complaint must be retained and filed on site, including information on how the complaint was resolved.

9.3 Regulator Site Visits and Written Communications

If an authorised officer (Council or DECCW representative) visits your site, you should contact the HSE Manager or Construction Manager for assistance and advice. While you can request that a higher level of management assists you, you cannot refuse to answer questions. An authorised officer must show their identification on request (ensure you ask for it) and has the right to ask any person on site questions relating to environmental issues. When being enquired, always be polite, discuss only the facts and do not elaborate or provide opinions.

Any Penalty Infringement Notices or official warnings from regulators are to be treated as 'incidents' and reported in the Incident Report Form, investigated and corrective actions assigned and completed to address the root cause of the infringement.



Any communication from a regulator must be notified to the HSE manager. Records of all communications must be retained and appropriately filed.

10. Environmental Risks

10.1 Standard Operating Procedures

Several standard operating procedures have been developed as part of the HSE management system to provide detailed information on the management of site issues in relation to environmental and safety risks. The following procedures have been developed to date and are available on SharePoint:

- SE-OP-01 Hazardous Substances and Dangerous Goods Procedure.
- E-OP-01 Erosion and Sedimentation Controls.
- E-OP-02 Waste and Resource Management.
- QSE-OP-02 Asbestos Management Procedure.
- SE-OP-04 Noise Management (OHS and Environmental).

10.2 Safe Work Method Statements (SWMS)

While SWMS are primarily used in WHS to manage high-risk activities, any relevant or foreseen environmental risk must also be considered in the preparation of the SWMS.

Taylor's site managers or their nominees are responsible for ensuring that subcontractors include environmental issues in their task-specific SWMS by using **SE-F-14**. If environmental issues are not appropriately addressed, the subcontractor should be advised of the requirements. It is recommended that subcontractors are assisted with identifying environmental issues, particularly during the early implementation of Taylor's environmental management system and CEMP.

References:

- SE-F-03 Taylor Construction Group Safe Work Method Statement.
- SE-F-14 Safe Work Method Statement Review Form.
- SE-F-14.1 Contractor's HSE Plan Review.

10.3 Environmental Risk Management and Control

This section provides an overview of environmental issues typically encountered on-site based on the generic issues identified in the master Environmental Risk Assessment. When preparing this document, the project manager should add any additional environmental issues that may have been identified through the environmental impact assessment, development consent/ approval, etc.

10.3.1 Project Design – Environmental Considerations

During the planning phase of the project, consideration should be given to the following:

- How will design minimise energy use and allow for and use the natural environment?
- How will materials, products and systems be selected or designed to minimise adverse impacts and/ or benefit the environment?

These questions should be considered prior to commencement of the project and may require the input from the client.

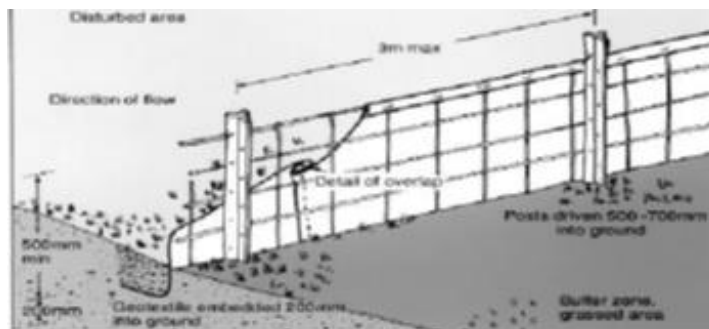
10.3.2 Soil and Water Management / Sedimentation and Erosion Control

Taylor and subcontractors shall plan and carry out works to avoid erosion and prevent sediment from leaving the site to the surrounding land, watercourses, water bodies, wetlands, and stormwater drainage systems. This includes the installation of erosion and sedimentation controls prior to commencing clearing works. Where possible, works should be staged to reduce the areas cleared at the same time to minimize soil disturbance. Where required, prepare erosion and sediment control plans (ESCP), install the controls in accordance with the plan, and maintain them regularly. For more detailed information, refer to the procedure and external guidelines listed below.

The following controls will be implemented within Taylor site boundaries to control erosion, sediment, and pollution within the site:

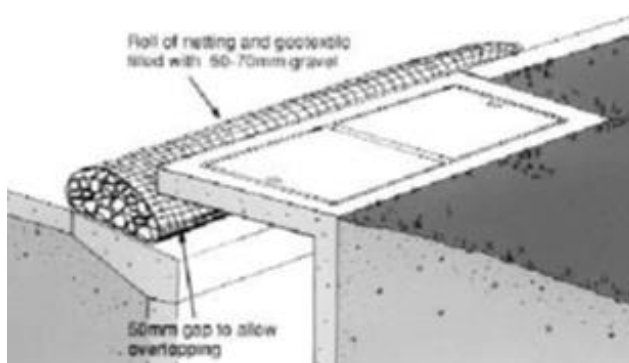
Sediment and erosion control devices – unnecessary disturbance of the site shall not occur, and all cuts are to be stabilised as soon as possible after the completion of site earthworks. Extra care will be taken to prevent sediment run-off into all neighbouring lots and stormwater. Any collected silt will be disposed of in accordance with all other relevant codes and standards.

Silt fences – are to be installed to site boundaries as required. Geotextile fabric will be fixed to the temporary construction fencing where 'downhill' boundaries exist. The fabric will be turned down under the existing ground line and secured at regular intervals not exceeding 3m, in accordance with the following diagram:



Vehicle access – will be controlled to prevent sediment being tracked. This will be done by maintaining an all-weather access/ driveway composed of an approved coarse aggregate surface. Moreover, if the need arises, a shaker grid will be installed to the main access by Taylor during the construction works. Any sediment that is tracked onto the surrounding roads will be cleaned off in a timely manner.

Storm water inlets – all storm water inlets are to be covered with geotextile fabric in a roll or other format to ensure that no sediment enters the storm water system. This will be the responsibility of the site manager to enforce. The rolls will not only be placed directly at the inlets as shown below, but also at regular intervals in the gutters 'upstream' from the inlets, creating multiple barriers.



Stockpiles – if appropriate topsoil is to be stockpiled on site, then the following measures will be put in place:

- Stockpiles shall be stored at least 2 metres away from drainage lines, natural watercourse and established trees.
- Stockpiles will have temporary silt fences around it to create an enclosure and, if necessary, they will be covered with shade cloth or tarpaulin to retain the materials inside it. The location of stockpiles will be determined on site.



Monitoring – to maintain the various erosion and sediment control devices, regular inspections, repairs and cleaning will be carried out on the silt fences to the boundaries, stockpiles, waste enclosures and to the stockpile covers.

References:

- E-OP-01 Erosion and Sedimentation Controls Procedure.
- Managing urban stormwater: soils and construction, Volume 1, 4th edition, 2004.

10.3.3 Vegetation Management

Taylor and subcontractors shall plan the works to preserve existing trees, plants and other vegetation, that are to remain within or adjacent to the works. Areas of the site that contain vegetation that must be preserved should be fenced-off, marked or otherwise isolated to ensure they are not inadvertently damaged. If there are any endangered species on site, specific management techniques may be required; these should be addressed in an Environmental Impact Assessment.

On completion of the works, all areas disturbed by construction activities shall be restored to the contract specifications. Where required and practical, efforts will be made to mulch and re-use vegetation on site or send it to a green waste recycling facility.

10.3.4 Waste Management and Resource Recovery

Taylor and subcontractors shall adopt the hierarchy of waste (avoid, reduce, reuse, recycle/ reprocess), dispose to maximise resource recovery and minimise disposal wherever possible and practical. The importance of appropriate waste management practices is to be included in the site induction.

Sites are to be provided with suitable bins and skips for appropriate collection and separation of waste and recyclables, and these are to be collected with appropriately qualified and licensed (where required) waste contractors.

Prior to disposal, waste must be classified in accordance with the DECCW Waste Classification Guidelines (latest version 2014) prior to transporting waste off-site. Excerpts from the waste classification guidelines are contained within appendix B of the **Waste and Resource Management Procedure E-OP-02**. Waste receipts must be kept for legal requirements; details of waste separated and disposed of is to be documented in the **Waste and Recycling Register QSE-R-16**. The information from the register is to be used to complete the waste management section of the KPI Monthly Report Form and forwarded to the HSE manager for tracking of Taylor environmental targets.

References:

- E-OP-02 Waste and Resource Management Procedure.
- SE-F-23 KPI Monthly Report Form.
- QSE-R-16 Waste and Recycling Register.



10.3.5 Noise Management

From an environmental viewpoint, noise can create a nuisance to neighbours and members of the public and is subject to legal requirements. Taylor and subcontractors shall make all practical efforts to comply with statutory requirements for noise management and minimise nuisance to neighbours. Protection of the Environment Operations Act 1997 (sections 139 and 140) and the Department of Environment and Climate Change NSW 'Interim Construction Noise Guideline' risk controls for noise must be incorporated in relevant SWMS, including nuisance to neighbours. Where required by development consent conditions, environmental noise monitoring will be undertaken as per the conditions. Further information on noise management from a WHS and environmental viewpoint is contained within the Noise Management Procedure.

References:

- SE-OP-04 Noise Management Procedure.

10.3.6 Water Quality Management

Taylor and subcontractors shall comply with the requirements of section 120 of the Protection of The Environment Operations Act 1997 (Prohibition of Pollution of Waters). The act prohibits all forms of water pollution unless specifically authorised through an environment protection license (EPL). On most projects undertaken by Taylor, an EPL will not be required.

There are substantial penalties for individuals and the company and controls must be in place to ensure that site activities do not cause water pollution.

Potentially hazardous activities, including washing out of concrete delivery vehicles and washing down of construction plant, are not permitted on site except in specially constructed bays that retain high PH water. Washing out of concrete delivery vehicles off-site is only permitted at locations approved for that purpose by the appropriate authority. Drains will be labeled to reduce the likelihood of misuse.

Washing of paint brushes must be undertaken to avoid any paint wash-water entering drains or waterways. Wash water must be removed from the site and appropriately treated and/ or disposed of. The chemicals, acids, or residue from any 'wet trades' such as brick cleaning must also be prevented from entering drains and waterways.

All liquids and materials that could cause water pollution must be stored in areas with secondary containment. Also refer to the section on hazardous substances, chemicals, oils, and other contaminants and the related procedure.

Pumping of stormwater – if a sediment basin is required and stormwater is required to be pumped out of the site, the pump intake is to be located no more than one metre (1m) below the surface of the collected water to reduce the amount of settled silt being pumped out for further treatment.

Stormwater treatment – there are two treatment options for stormwater collected on-site, flocculation and/ or filtration. For each option, the applicable procedures in their entirety are to be followed.

References:

- SE-OP-01 Hazardous Substances and Dangerous Goods Procedure.
- Storing and Handling Liquids - Environmental Protection (DECCW).

10.3.7 Air Quality Management

Taylor and subcontractors shall comply with all statutory requirements governing air quality management, i.e. Protection of The Environment Operations (POEO) Act 1997, section 124, and the POEO Clean Air Regulation 2010.

The Project / Site Manager will ensure that all construction facilities erected at the site are designed and operated to minimise the emission of smoke, dust, cement dust, plant and vehicle exhausts, and other substances into the atmosphere.



Taylor and subcontractors shall employ construction methods that will keep the air pollution to a minimum and apply measures such as those listed below to ensure that airborne pollutants do not cause pollution and nuisance near the works:

- The spraying of disturbed soil and roads with water whilst under construction as required.
- The removal of mud from the wheels and bodies of plant and vehicles before it enters public roads or other sealed pavements. This could be rumble grids, dry brushing, wheel wash, etc., depending on the nature of the site.
- The removal of mud or dirt spilled by construction equipment onto public roads or other sealed pavements.
- The provision of coverings or stabilisation of topsoil stockpiles.
- Covering all loads leaving the site.
- Stabilisation of ground likely to be exposed for significant time periods (e.g., using sterile seed).
- Fitting power tools with dust collection devices where practical.
- Keeping all plant and equipment well maintained and not leaving them idling while not being used.
- Reporting excess air emissions from plant and arranging for a service to fix the problem.

On-site burning of any materials is not permitted on Taylor sites.

Dust Including Crystalline Silica Dust

Dust containing respirable crystalline silica particles is commonly called silica dust. Activities such as cutting, grinding, sanding, drilling, loading or demolishing products that contain silica can generate respirable particles of crystalline silica dust that are small enough to breathe into your lungs. Crystalline silica dust can be harmful when it is inhaled into your lungs over a long period of time at low to moderate levels, or short periods at high levels.

From the **1st of July 2020** in NSW dry cutting will be an offence and for those who choose to ignore the law and put their employees at risk, SafeWork inspectors will issue tough new fines for noncompliance.

All subcontractors working on a Taylor project that is using, drilling, cutting, sanding or grinding products that are known to contain silica will need to have a system in place that will allow their workers to either wet cut or drill, or will be required to use dust extraction systems on portable tools, or adopt other methods that eliminate or minimise the generation of silica dust.

10.3.8 Hazardous Substances, Chemicals, Oils, and Other Contaminants

Prior to commencing work on site, an assessment of the quantities and locations of hazardous substances, chemicals, etc. likely to be held on-site must be undertaken. The location of hazardous substances and other contaminants must be marked on a site map (refer to appendix 5). The Site Manager will use the assessment when planning the works to minimise the potential for pollution. This includes providing appropriate storage, separation of incompatible materials and bunding, and ensuring that all activities that use or handle these substances are undertaken in an area that will not cause water pollution or land contamination.

Spill kits will be provided wherever substances that could potentially cause pollution are stored and handled. Relevant site personnel will be trained in spill response and will be familiar with the contents and function of the spill kit materials on site. All spills, no matter how small, must be cleaned up immediately and be reported as an environmental incident.

Refuelling or maintenance of plant and equipment, or any other activity which may result in the spillage of a chemical, fuel or lubricant on the site, is not permitted without appropriate temporary control measures.

The use and storage of any hazardous substances or other chemicals will be made strictly in accordance with the manufacturer's instructions and the relevant materials safety data sheets (MSDS).

References:

- SE-OP-01 Hazardous Substances and Dangerous Goods Procedure.
- Storing and Handling Liquids - Environmental Protection (DECCW).



Spill Response

Major spillages must be notified immediately, and all efforts made to contain the spill and prevent escape into stormwater drains and waterways, provided it is safe to do so. If the spill is beyond the capacity of the site personnel to contain and clean up, specialist services must be employed.

Minor spillages must be cleaned up immediately. If soil or ground is contaminated, the soil is to be removed and placed into a bag or designated waste drum and disposed of appropriately.

If the spill enters drains or waterways, the incident may be required to be reported to the appropriate regulatory authority (local council) as soon as practicable, in accordance with the duty to report under the POEO Act. The decision to report must be discussed with the HSE Manager or a Director prior to making the report.

Spill response procedures for this project are:

- Provide site map showing the location of all hazardous substances, chemicals, fuels, oils, spill kits, stormwater drains, and natural waterways (Appendix 5).
- Spill Response Procedure flow chart (Appendix 3).
- Call emergency services (fire, hazmat): call 000.
- Local council phone number: 02 9806 5050
- MSDSS are located at: Site Office & Hammertech

10.3.9 Pesticide Use and Storage

If pesticides are used at the site, they must be stored appropriately as per 'hazardous substances' section (11.3.8 above) and used in accordance with the manufacturer's requirements and the NSW Pesticides Management Act and Regulations. The act and regulations have strict record-keeping requirements for the use of more than 20 litres of product.

Taylor Construction Group's general policy on the use of pesticides is that they should only be applied by suitably qualified pest control contractors.

10.3.10 Contaminated Land

Prior to commencing project work, checks should be made on the potential for the site to be contaminated. This should generally be identified by the client and addressed in an Environmental Impact Assessment. If the site is found to be contaminated, the recommendations for the management of the contaminated soils from the assessment and other reports should be incorporated into this CEMP below.

Should contamination be suspected once working on the site (e.g., unusual odours, visual indications of soil or water pollution, etc.) work should cease immediately and Taylor's project/ site manager contacted. Where relevant, the client should be notified by Taylor's project manager, and investigations undertaken into the nature of the contamination. Work should not recommence until the nature and extent of the contamination is established and can be safely managed without environmental risk.

Taylor and subcontractors shall comply with relevant statutory requirements of the Contaminated Land Management Act and the POEO Act (NSW) in relation to the disturbance or treatment of potentially contaminated ground.

The company shall install any control measures needed to divert surface run-off away from the contaminated ground and to treat any surface run-off contaminated by exposure to contaminated ground. Contaminated material removed from the site must be recorded on the **Waste and Recycling Register QSE-R-16**.

References:

- Waste and Recycling Register QSE-R-16.



10.3.11 Acid Sulphate Soils (ASS)

Acid sulphate soils are naturally occurring soils generally found in estuarine areas. When exposed to air, they can oxidise and cause run-off of highly acid water. Acid sulphate soils require specialist management techniques.

The client should be aware of any potential for encountering acid sulphate soils and, if there is a potential, it should be addressed in the Environmental Impact Assessment undertaken for the project.

10.3.12 Community Communication

School Infrastructure NSW manages the community engagement and all community communications for the project. If, during construction, direct community complaints are received on site, they should be treated as incidents. Complaints must be reported to the SINSW Community Engagement manager and Project Director for logging to the CRM system immediately as well as to the HSE Manager for investigation and reporting on SharePoint. Reference to complaints must also be documented and included in site diary entries.

The project manager and site manager should work closely with SINSW to resolve the issue within 10 days, where practicable. Where complaints are unable to be resolved within this timeframe the complainant should be provided with regular updates regarding the complaint resolution process. Please refer to the Community Communication Strategy for further information.

References:

- Community Communication Strategy
- SE-F-21 Incident Report Form.
- SE-F-22 Incident Investigation Form (report on SharePoint – forms are back-up only).
- SE-F-23 KPI Monthly Report (as above).

10.3.13 Archaeology and Heritage Management

If any unexpected heritage item is discovered during maintenance and construction works, the following must be taken into consideration:

Indigenous heritage – all Aboriginal and Torres Strait Islander, regardless of significance, are protected under law. Should any deposit, artefact or material evidence (including skeletal remains) of Aboriginal and Torres Strait Islander origin be found, Taylor and subcontractors shall cease all construction works that might disturb or damage the deposit, artefact or material. The Project Manager will notify the client immediately, who will then consult the relevant government department (i.e., DECCW - National Parks and Wildlife Services). Examples of Aboriginal and Torres Strait Islander objects include stone tool artefacts, shell middens, axe grinding groves, pigment or engraved rock art, burials, and scarred trees.

Historic heritage – historic (non-Aboriginal) heritage items may include archaeological 'relics and other historical items such as works, structures, buildings or moving objects. Should any item which is suspected to be of historical heritage value be encountered, Taylor and subcontractors shall cease all construction works that might disturb or damage the item. The Project Manager will notify the client immediately, who will arrange for an officer from the relevant government heritage department to be consulted. A 'relic' is 'any deposit, artefact, object or material evidence that relates to the settlement of the area, not being Aboriginal and Torres Strait Islander settlement; and is of State or local heritage significance'. It can include bottles, remnants of clothing, pottery, building materials and general refuse.

References:

- Heritage Act 1977.
- National Park and Wildlife Act 1974.
- Unexpected Heritage Items Procedure – Roads and Maritime Services, 2022.

10.3.14 Additional Environmental Issues

Nil at this point.

11. Incident and Emergency Management

11.1 Emergency Response

The Emergency Response Plan for this site has been developed based on a template provided in the **SE-P-07 Project Emergency Control Management Plan**. Additional information for the management and control of emergency situations can be found in the Project Safety Plan (**WHS-PLAN-02**) but a Spill Response Procedure Flow Chart is contained in appendix 3 of this plan. For additional information on response to a spill, refer to section [10.3.8](#).

Emergency response posters and flow charts are to be posted in the site and induction office, WHS notice boards, in crib rooms and other areas of the site as required.

References:

- SE-P-07 Project Emergency Control Management Plan.
- QSE-F-10.1 Pre-Start Site QSE Checklist.
- SE-F-31 Emergency Evacuation Rehearsal Register.
- SE-F-05 Site Layout Evacuation Plan.
- SE-F-06 On-Site Emergency Control Plan.

11.2 Incident Reporting and Investigation Reporting

Site environmental incidents must be reported to the Project / Site Manager as soon as practically possible. In addition, any major environmental incidents must also be reported to the HSE Manager in accordance with the **Incident Reporting and Investigation Procedure QSE-OP-05**. The priority is to ensure that the situation is controlled as soon as possible and to avoid further pollution or other adverse environmental consequences. Reporting of the incident should not delay any immediate responses to the incident.

Incident Reports must be completed and forwarded to the HSE manager within 24 hours and must be kept for a minimum of five (5) years.

Environmental incidents that cause, or threaten to cause, material environmental harm must be reported to the Appropriate Regulatory Authority (ARA, the local council in which the project is located) as soon as practicable following the incident. This would include any spillage or leak of substances that cause water or land pollution. Material environmental harm generally means that the harm is not trivial and/ or costs more than \$10,000 to clean up. The phone number of the ARA should be included in the Emergency Response Plan.

If the Site Manager believes that the incident may be reportable to the ARA, contact the WHS Manager for further advice prior to making an investigation report.

All environmental incidents that cause, or could potentially result, in an environmental harm are to be investigated, and corrective actions implemented following the investigation. Depending on the seriousness of the incident, key site personnel, the HSE Manager, witnesses, etc. should be consulted on the investigation and in determining appropriate corrective or preventive actions.

References:

- QSE-OP-05 Incident Reporting and Investigation Procedure.
- SE-F-21 Incident Report Form (report on SharePoint – forms are back-up only).
- SE-F-22 Incident Investigation Form (as above).



12. Environmental Monitoring and Inspections

12.1 Site Environmental Inspections

Site environmental inspections are to be undertaken weekly using **SE-F-02 HSE Inspection Checklist** to ensure that environmental hazards are recognised and can be promptly rectified. Additional environmental issues may be added to the site HSE inspection form as required.

12.2 Physical Monitoring

For many projects undertaken by Taylor, physical environmental monitoring is not typically required (e.g., dust, water quality, noise levels and air quality). Should the Environmental Impact Assessment specify that environmental monitoring is required, the project manager will arrange for appropriately qualified consultants to undertake that monitoring. All equipment used to measure environmental parameters will be calibrated in accordance with manufacturer's instructions.

12.3 Monitoring of Project Environmental Targets

Objectives and targets for the project are specified under 'Objectives and Targets' section of the CEMP. Data relating to these targets will be documented daily using site diaries, reviewed by Project / Site Managers monthly and forwarded to the HSE Manager for reporting to senior management.

The KPI monthly report captures information on lag and lead indicators. The current indicators are:

Lag indicators:

- Number of environmental incidents.
- Number of penalty infringement notices (pins) or clean-up notices.
- Number of community complaints.

Lead indicators:

- Number of toolbox talks (combined with WHS and environmental issues);
- Number of environmental inspections undertaken.
- Waste and recycling volumes (initially to set benchmark, then track improvement)

Add any additional KPIs that may be set from Environmental Impact Assessments, conditions of consent and client requirements, etc.



13. Non-Conformity, Corrective and Preventive Actions

Taylor has a non-conformance and corrective action process in place to address all non-conformities across the business, regardless of the source. The process is defined in the **Reporting Non-Conformance, Corrective and Preventive Actions Procedure QSE-OP-29**. Typically, environmental non-conformances would result from audits, inspections and from observations by the site manager of poor environmental practices, including incorrect waste disposal/ recycling (liquid waste, poor storage of hazardous substances, oils, chemicals and damage to existing environmental controls such as sediment fencing, etc.). Non-conformances may be issued for serious breaches or repeated minor breaches.

References:

- QSE-OP-29 Reporting Non-Conformance, Corrective and Preventive Actions Procedure.
- Notices (electronic) raising of non-conformances (internal).
- Notices (printable) for raising NCRS on subcontractors.

14. Purchasing / Procurement

Purchasing and procurement includes the purchase of goods and the supply of services of contractors. When purchasing goods, the following environmental considerations should be considered:

- Is there a less toxic, less harmful alternative (e.g., chemicals, paints, solvents, etc.)?
- How much do we need? Will anything be wasted? Precise ordering will minimise wastage of resources and money.
- Can the product be purchased locally to reduce transport impacts?
- Are there any opportunities to use 'green' products in construction to improve the efficiency of the building in terms of energy and water usage (design issue – may need client input)?
- S-F-18.1 Pre-Hire Purchasing Assessment Form

When engaging contractors, the following should be taken into consideration:

- Has the environmental capability been assessed and signed-off through contract administration?
- Has the contractor attended a pre-award interview and assessed Taylor Construction Group environmental requirements?
- Has **Subcontractor Tender Interview and Assessment Form QSE-F-15.6** been completed?

References:

- QSE-OP-15 Subcontracting, Purchasing and Hiring Procedure
- QSE-F-15.6 Subcontractor Tender Interview and Assessment Form.



15. Contractor Management

Taylor, as the principal contractor, will ensure that contractors performing work on site are aware of the environmental requirements and enforce compliance to requirements.

Prior to commencing on site, contractors are to be inducted to the site as part of the HSE requirements. Inductions will include an environmental component to ensure all contractors are aware of the environmental risks on the project.

Contractors are required to submit Safe Work Method Statements (SWMS) prior to commencement of work as part of the WHS requirements. SWMS must also address the environmental risks for the tasks and will be reviewed and checked-off on **SE-F-14 Safe Work Method Statement Review Form** by the site manager to ensure that all environmental risks are appropriately identified, and controls documented.

Environmental inspections will be undertaken at least once monthly. This will include an inspection of the contractor's work area and checking that all environmental controls are in place. Serious breaches or repeated minor breaches will result in the issue of a Non-Conformance Report, and the issue must be resolved within designated time frames.

16. Environmental Audit

Audits of the Environmental Management System will be conducted regularly to ensure the system is appropriately in place and implemented. As part of the audit program, audits will also be undertaken on project sites for compliance to the requirements of the Construction Environmental Management Plans. Audits should be undertaken by suitably experienced auditors.

Projects that have duration of more than six months will have at least one audit against the CEMP and, after the six months, will be audited at least once per year. This will generally be undertaken as an integrated audit in conjunction with the Project Safety Plan and Project Management Plan (Quality). Projects with high-risk activities or that performed poorly at the initial audit may be audited at a higher frequency. The HSE Manager is responsible for coordinating project audits.

17. Review of This Plan

This Environmental Management Plan must be reviewed by the project manager in consultation with the project team and HSE manager whenever any major change occurs on the site that may have an impact on the environment, or at least twice (every six months) during construction.

Appendix 1 – Global Mark Accreditation



global-mark®

Certificate of Approval

This certificate confirms that the company below complies with the following standard:

Company Name	Taylor Construction Group		
Company Other Name			
Client ID	101009	Scheme	Environmental Management Systems Scheme
Certification Standard	AS/NZS ISO 14001-2016: Environmental management systems - Requirements with guidance for use		
Scope of Certification	Design, construction, project management and property development services		
Type of Certification	Management System		

The control set source for controls applied in the Statement of Applicability (referenced above) does not imply these controls are certified by Global-Mark.

CERTIFICATE DATES:

Original / Initial	19/11/2009	Last Certificate update	13/05/2021
Certification / Re Certification	4/05/2021	Expiry	7/05/2024
Last Certification Decision	13/05/2021		

APPROVED COMPANY/SITE ADDRESS(ES):

Level 13, 157 Walker Street North Sydney NSW 2060 Australia

The use of the Accreditation Mark indicates accreditation by the Joint Accreditation System of Australia and New Zealand in respect to those activities covered by JAS-ANZ accreditation. Refer to www.jas-anz.org/register for verification.

This certification remains valid until the above mentioned expiry date and subject to the organisation's continued compliance with the certification standard, and Global-Mark's Terms and Conditions.

This Certificate of Approval remains the property of Global-Mark Pty Ltd, Company Number: ACN 108-087-654



Certification Manager

Unique Certificate Code: E15D2CE263BF3E6CCA2586CF0001C4EF

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Appendix 2 – Environmental Policy

Environmental Policy

Taylor regards appropriate management of environmental issues as integral to our business. We are committed to the protection of the environment and ecologically sustainable practices in all aspects of our operations.

We will comply with all relevant legislation governing the protection of the environment. Our environmental management systems will address all aspects of the International Standard, ISO 14001:2016: "Environmental Management Systems – Requirements with guidance for use".

In managing our business, we make a commitment to:

- Work pro-actively with our clients, regulators, and other community stakeholders to enable environmental issues to be addressed at an early stage of development.
- Take local community views into consideration and ensure that we inform, listen to and respond to reasonable concerns relating to our projects.
- Undertake our activities in a manner that is consistent with the principles of ecologically sustainable development.
- Prevent pollution and reduce adverse environmental impacts of our activities on the natural, built and cultural environment.
- Promote the efficient use of natural resources and reduce waste through the use of the waste hierarchy – avoid, reduce, re-use, recycle and finally dispose.
- Set realistic environmental objectives and targets at all relevant levels within the company and continually monitor performance.
- Promote environmental awareness among all employees and subcontractors to achieve our environmental objectives.
- Continually improve our environmental performance through periodic review and evaluation of our policy and management systems to ensure they remain suitable, adequate and effective.
- Encourage a sense of personal responsibility for environmental issues amongst employees and subcontractors through effective communication, training and positive organisational culture.

This policy will be reviewed in December 2023.



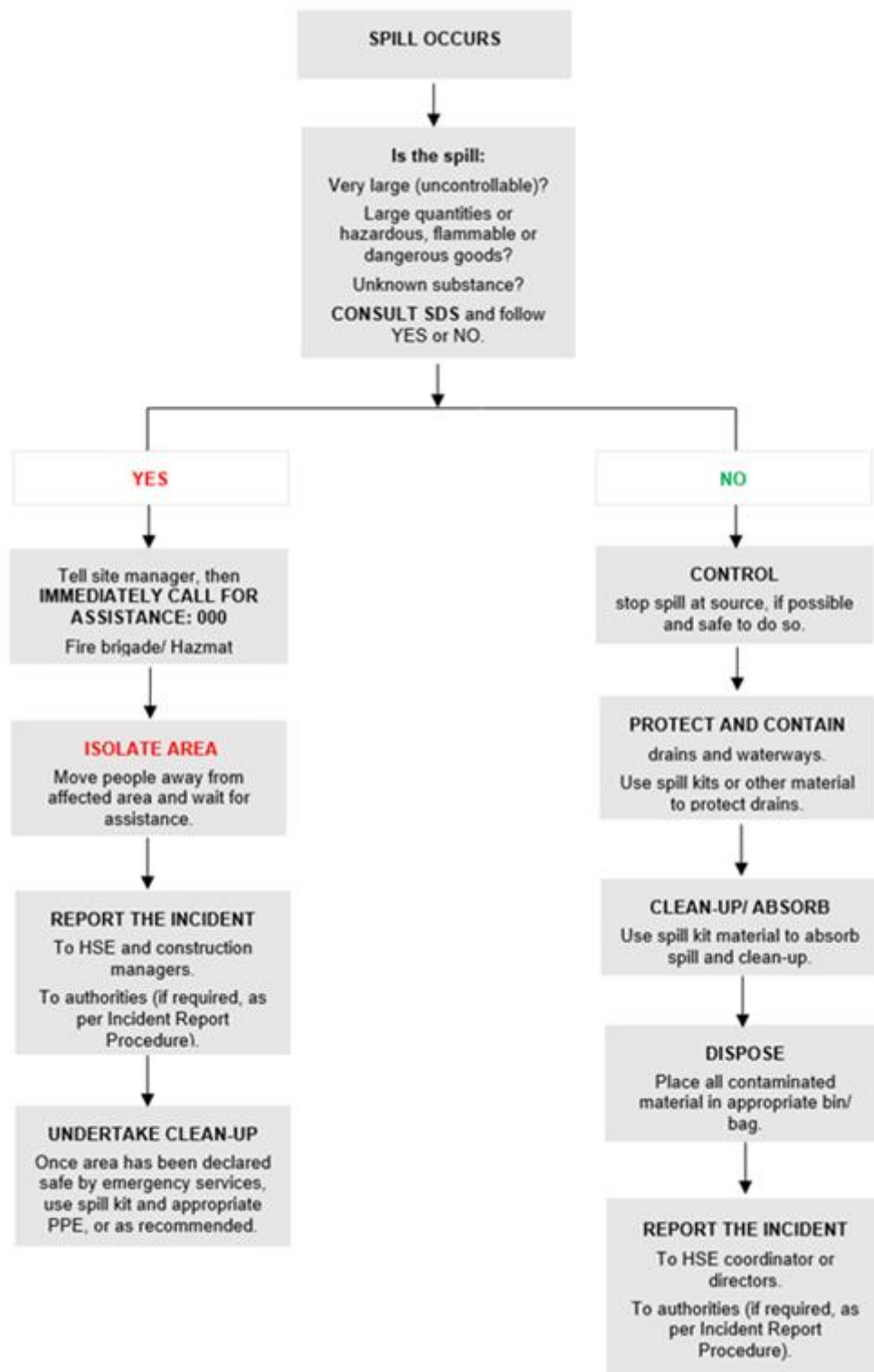
George Bardas
Chief Executive Officer



Appendix 3 – Taylor’s Construction Spill Reponse Procedure Flow Chart



Taylor's Construction Spill Reponse Procedure Flow Chart



Appendix 4 – Site Environmental Emergency Response Plans



Site Environmental Emergency Response Plans

Potential emergency	What to do?	Relevant authorities and persons
Injury caused by: – Fire – Explosion – Machinery accidents – Minor injuries	– For serious injuries, call an ambulance. You should also have the contact details of the nearest doctor, medical centre and hospital. – Immediately inform the site first aid officer. – Follow the procedures as detailed in the Site Safety Plan. – For major injuries, contact the site manager or project manager.	– Emergency services – Nearest doctor – Medical centre – Site Manager – Project Manager
Fire Fire at the diesel tank Fire at any of the machineries Fire caused by vandalism	– Evacuate all personnel to a safe area immediately. – Call the fire brigade (emergency services). – If the fire is likely to damage neighbouring property, inform the adjacent residents. – Follow the procedures as detailed in the Site Safety Plan. – For major fire emergencies, contact the site manager or project manager. – Inform terminal security. Note: fire extinguishers are located throughout the site as detailed in the Emergency Evacuation Map.	– Emergency services – Site Manager – Project Manager – Adjacent residents
Spills management and contaminated soils. Major spills: – Spill or release of diesel fuel or oil – Spill or release of other hazardous chemicals or material.	For major spills (defined as a spill that is likely to have direct environmental consequences): – Immediately call the Fire Brigade and notify the project manager. – Identify the source of the spill. – Refer to the Material Safety Data Sheet (MSDS) and evaluate the hazards of the material.	– Emergency services (fire brigade) – HSE Manager – Site Manager and Project Manager – EPA
Minor site spills Acid sulphate soils	– If the material is dangerous, evacuate the site immediately and notify all neighbours. – If it is safe to do so, halt the source of the spill immediately. – Contain the spill and control its flow. – Block storm water drains downstream of the spill. – EPA and local council must be notified about any spills that are likely to threaten the environment. – Minor spills (defined as spills which can be contained and rectified correctly without the need of external services), shall be contained and rectified with the site spill kit and disposed of correctly. Superintendent to be notified via incident report. – Reported to the Site Manager.	– Emergency services (fire brigade) – HSE Manager – Site Manager and Project Manager – EPA



Potential emergency	What to do?	Relevant authorities and persons
	– Where acid sulphate soils are discovered, the spoil shall not be removed from site; subsequent notification and testing will follow.	
Heavy rainstorm and flood beyond the capacity of the sediment and erosion controls on-site or failure of the sedimentation control measures.	– Contain/ minimise the flow. – Contact council immediately. – Investigate reasons for failure and prepare an incident report. – Contact the Project Manager.	– Council – Site manager – Project manager
Discovery of items of conservation value (e.g., flora and fauna, heritage).	Fence-off the area as 'no go' zone and contact the site manager or project manager immediately for further action.	– Site Manager – Project Manager
Discovery of contaminated material on site (e.g., underground fuel storage tanks).	Fence-off the area as 'no go' zone and contact the site manager or project manager immediately for further action.	– Site Manager – Project Manager

Appendix 5 – Site Map: Environmental Requirements

TREE PROTECTION ZONE INFO

Tree ID	Species	DBH (cm)	Height (m)	Health	Location	Protection Zone (m)	Notes
1	Red Oak	15.0	12.0	Good	North of Building	15.0	Retain
2	Red Oak	12.0	10.0	Good	West of Building	12.0	Retain
3	Red Oak	10.0	8.0	Good	East of Building	10.0	Retain
4	Red Oak	8.0	6.0	Good	South of Building	8.0	Retain
5	Red Oak	6.0	4.0	Good	North of Building	6.0	Retain
6	Red Oak	4.0	3.0	Good	West of Building	4.0	Retain
7	Red Oak	3.0	2.0	Good	East of Building	3.0	Retain
8	Red Oak	2.0	1.0	Good	South of Building	2.0	Retain
9	Red Oak	1.0	0.5	Good	North of Building	1.0	Retain
10	Red Oak	0.5	0.2	Good	West of Building	0.5	Retain

LEGEND

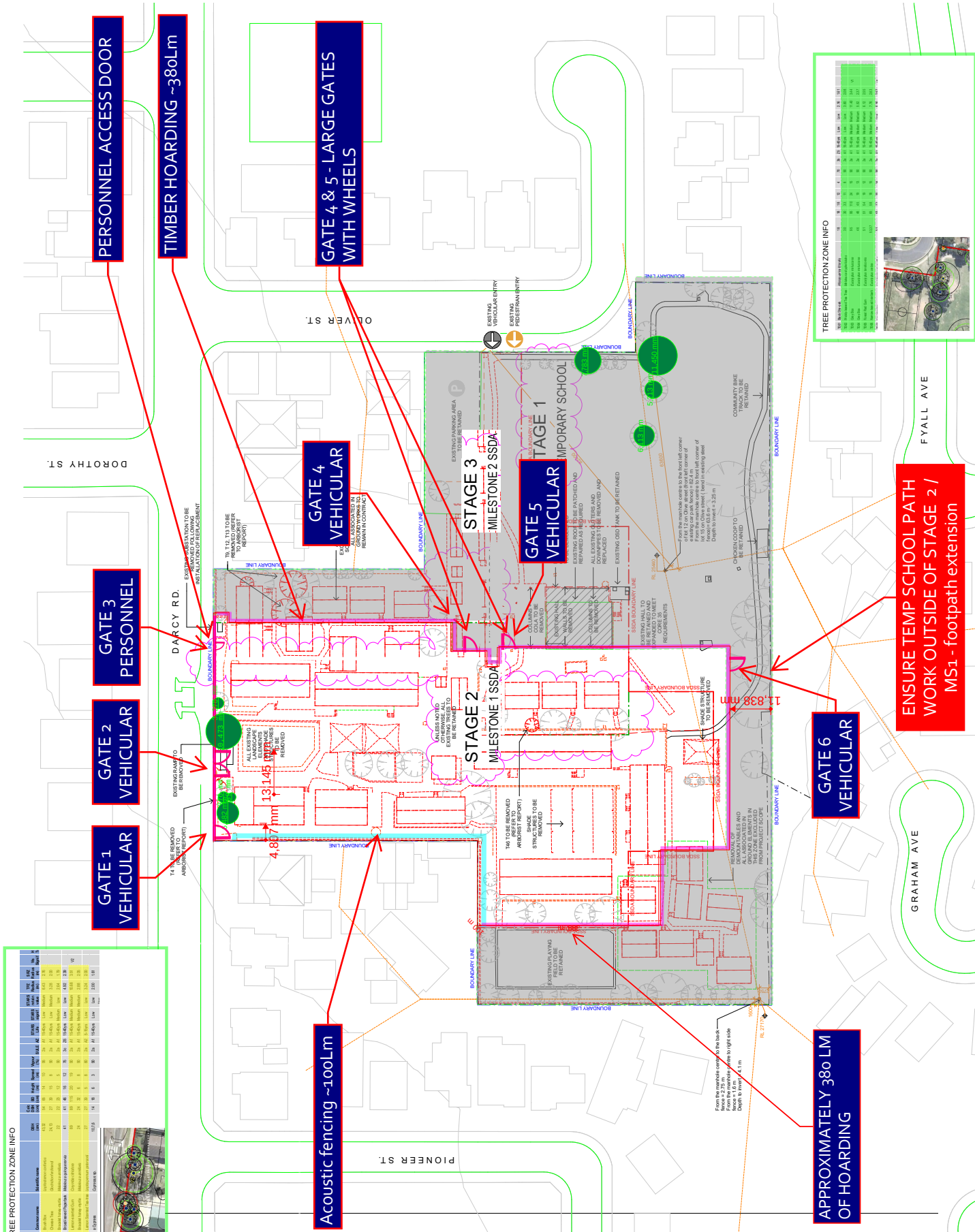
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TREE PROTECTION ZONE

PLYWOOD HOARDING

ACOUSTIC HOARDING

GATES IN HOARDING



TREE PROTECTION ZONE INFO

Tree ID	Species	DBH (cm)	Height (m)	Health	Location	Protection Zone (m)	Notes
1	Red Oak	15.0	12.0	Good	North of Building	15.0	Retain
2	Red Oak	12.0	10.0	Good	West of Building	12.0	Retain
3	Red Oak	10.0	8.0	Good	East of Building	10.0	Retain
4	Red Oak	8.0	6.0	Good	South of Building	8.0	Retain
5	Red Oak	6.0	4.0	Good	North of Building	6.0	Retain
6	Red Oak	4.0	3.0	Good	West of Building	4.0	Retain
7	Red Oak	3.0	2.0	Good	East of Building	3.0	Retain
8	Red Oak	2.0	1.0	Good	South of Building	2.0	Retain
9	Red Oak	1.0	0.5	Good	North of Building	1.0	Retain
10	Red Oak	0.5	0.2	Good	West of Building	0.5	Retain

ENSURE TEMP SCHOOL PATH WORK OUTSIDE OF STAGE 2 / MS1 - footpath extension

GATE 6 VEHICULAR

APPROXIMATELY 380 LM OF HOARDING

Taylor Construction

Drawing Title

HOARDING AND GATES

Date 16/08/23

Scale 1:500 @ A1

Drawing Reference

TCG-SK-010.2

Revision

1

16/08/23

LEGEND

5m

TREE PROTECTION ZONE

PLYWOOD HOARDING

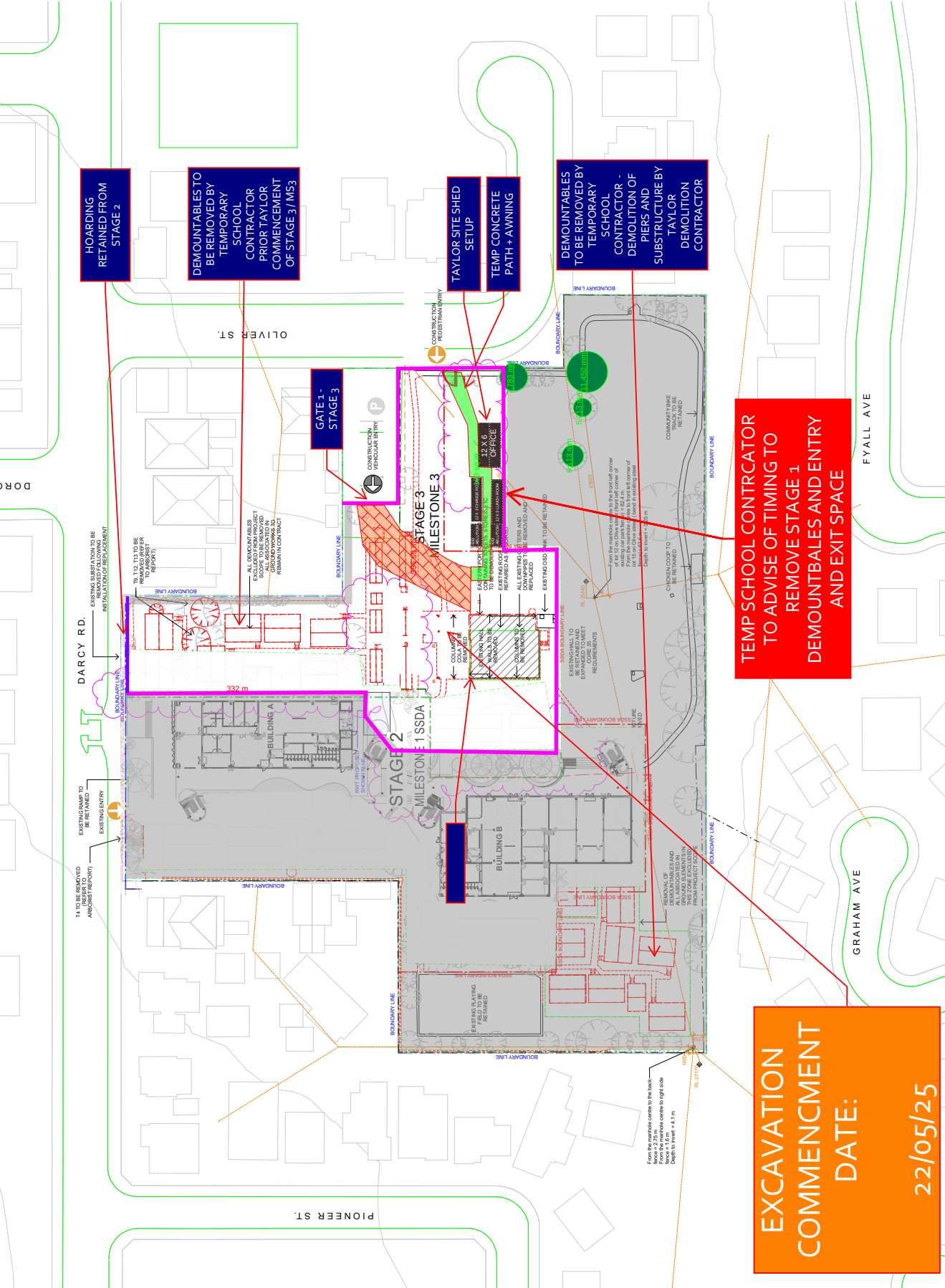
ACOUSTIC HOARDING

GATES IN HOARDING

1

SEQUENCE OF WORKS

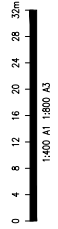
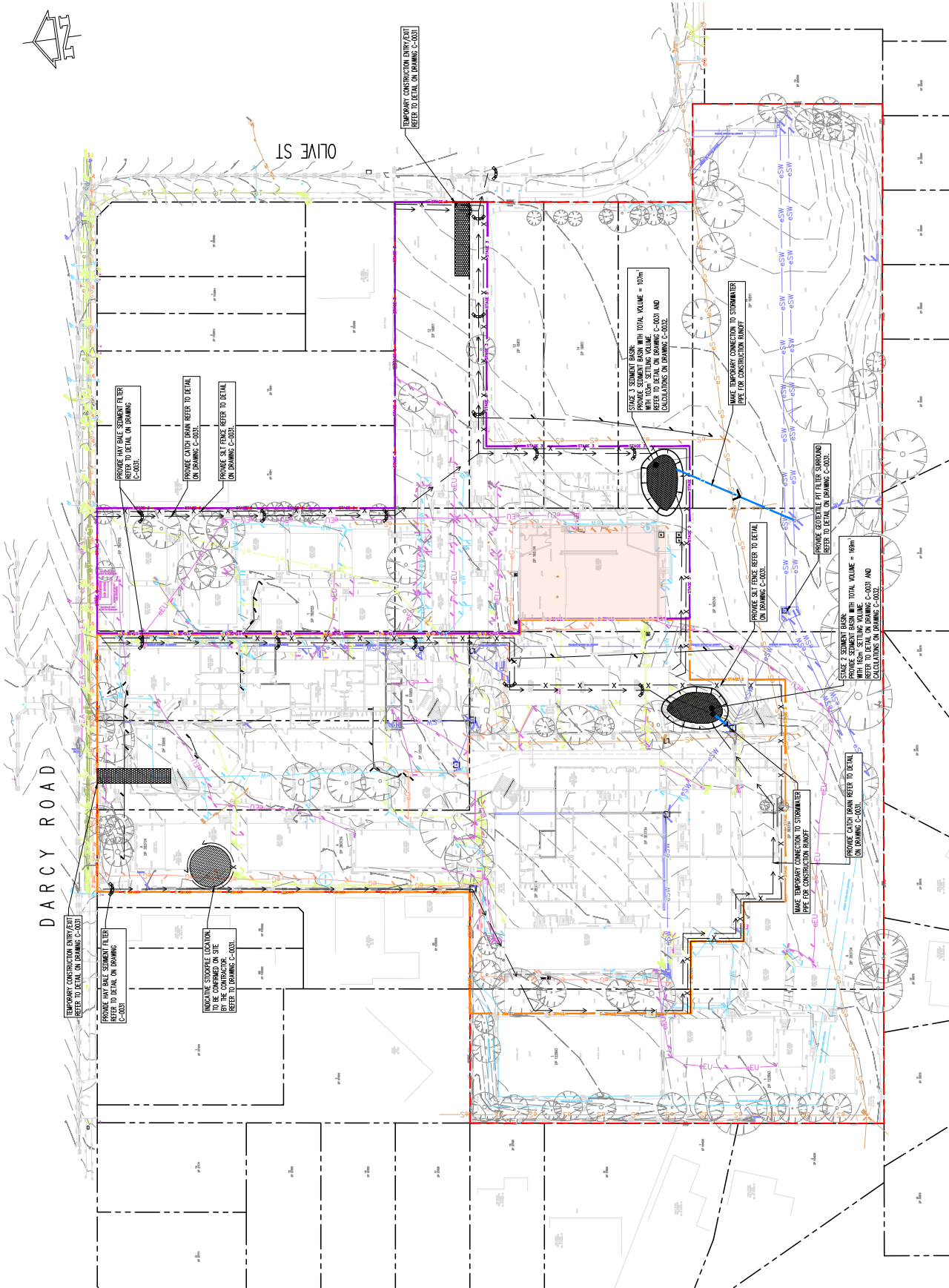
TEMPORARY ROAD
150MM THICK STABILISED
ROADBASE



TEMP SCHOOL CONTRACTOR
TO ADVISE OF TIMING TO
REMOVE STAGE 1
DEMOUNTABLES AND ENTRY
AND EXIT SPACE

EXCAVATION
COMMENCEMENT
DATE:
22/05/25

Appendix 6 – Sediment Control Plan



Appendix 7 – Environmental Legal and Other Requirements Register



Project :

2307 - Darcy road Public School

TAYLOR

Date: 21/07/2023

ENVIRONMENTAL -LEGAL -REGISTER -01

Environmental Legal Register

Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites
<i>Protection of the Environment Operations Act 1997 (POEO Act)</i>	The POEO Act is the key piece of environment protection legislation, and is administered by the Department of Environment and Climate Change (DECC) – formerly EPA. The objective of the Act is to protect restore and enhance the quality of the environment in NSW with a need to maintain ecologically sustainable development.	Environmental Protection Licences may be required for large projects by TPG. (Refer to Schedule 1) Therefore, in most cases, the local council is the Appropriate Regulatory Authority	Environmental inspections Compliance checks / audits against Environmental Management Plan	www.austlii.edu.au/au/legis/nsw/consol_act/poteoa1997455/ http://www.environment.nsw.gov.au/licensing/ http://www.environment.nsw.gov.au/water/polltreatment.htm http://www.environment.nsw.gov.au/air/
	Schedule 1 of the POEO Act lists activities that are subject to environmental licensing.	Environmental protection offences and penalties, and a duty to notify of environmental harm, apply to all personnel working on the project. Managers, supervisors, workers and contractors need to comply with all requirements of the Act, with particular emphasis on duty to notify, and prevention of pollution (see key sections in adjacent column to the left)		
	Where an environmental Protection Licence is required, the DECC is the Appropriate Regulatory Authority (ARA). In most other cases, the local council is the ARA.	The company and individuals can be prosecuted in criminal proceedings under this Act.	Environmental inspections Plant pre-start inspections and plant maintenance Compliance checks / audits against Environmental Management Plan	
	The POEO Act imposes severe penalties for causing environmental harm, polluting water, not operating equipment in an efficient manner and inappropriate handling and disposal of waste. Penalties also exist for failure to notify pollution incidents.			
	The following is a summary of key sections of the Act that must be complied with: - S 120 – Prohibition of Water pollution - S 124 - 125 Air pollution - failing to maintain and operate plant, or carry out maintenance work on plant, in a proper and efficient manner.			

Project : 2307 - Darcy road Public School

Date: 21/07/2023

ENVIRONMENTAL -LEGAL -REGISTER -01

Environmental Legal Register

Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites
	▪ S 128 Standard of air impurities not to be exceeded (air pollution) ▪ S 139 – Noise Pollution – operation of plant S 142 A-E – Land Pollution (offence if cause or permit land to be polluted) S 143 – Land Pollution (unlawful transport of waste) S 144 – Land Pollution – permitting land to be used as unlawful waste facility S 148 – Duty to Notify	Waste must be transported by an appropriately licenced transporter to a facility that is licenced to accept waste		http://www.environment.nsw.gov.au/noise/
	S 152 Offences for failure to notify of pollution incident	Licensed disposal authority to provide receipts for all waste received , receipt is to include date, time and amount of waste disposed , ALL receipts MUST be provided to Taylors site management on their return to site or when requested	Environmental incident reports (indicating if notification was required). Reviewed at Management Review.	
	Penalties Most Serious Offences Causing Harm to the Environment and Involving Wilfulness or Negligence Maximum penalty: Corporations \$5,000,000 (wilful) or \$2,000,000 (negligence); Individuals \$1,000,000 or 7 years' imprisonment, or both, (wilful) or \$500,000 or 4 years' imprisonment, or both (negligence)	Damage to corporate reputation / image Possible exclusion from tendering for future environmental sensitive projects	Environmental inspections Plant pre-start inspections and plant maintenance Compliance checks / audits against Environmental Management Plan	
	Tier 2 (strict liability) Corporations: \$1,000,000 and up to \$120,000 for each day the offence continues. Individuals: Up to \$250,000 and up to \$60,000 each day the offence continues.	Financial Cost to company and project stake holders	Monitor compliance with DA consent	



Project :

2307 - Darcy road Public School

Date: 21/07/2023

ENVIRONMENTAL -LEGAL -REGISTER -01

Environmental Legal Register

Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites
	Tier 3 (penalty notice – on the spot fine) \$1500 for corporation \$750 for individuals Failure to Notify a Pollution Incident Maximum penalty: corporations \$1,000,000; individuals \$250,000			
<i>POEO (General) Regulation 2009</i>	The Regulation (among other things): - sets out fees for environment protection notices and noise control notices; - sets out matters to be included by the EPA in its statement of reasons for the grant or refusal of a licence application; - makes it an offence to provide false or misleading information in relation to a licence application; - requires licensees to retain records used to calculate licence fees; - prescribes certain matters when placed into water to be water pollution, and the methodology for testing matter in waters; - exempts certain water pollution from the water pollution offence under the <i>POEO Act 1997</i>; - allows the EPA to prohibit or regulate certain activities that threaten the safety of drinking water that is part of a public water supply; declares certain bodies to be the ARA in relation to certain activities for the purposes of the <i>POEO Act 1997</i>;	Projects may require environmental protection licences. (Refer to Schedule 1 of the POEO Act)	Planning - requirement for Licence set out in PEMP (if required) Audits against PEMP	https://www.google.com.au/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKEwiQg5ew4rzYAhWHE7wKHxjTDDUQQFggnMAA&url=http%3A%2F%2Fwww.austlii.edu.au%2Fau%2Flegis%2Fnsu%2Fconsol_reg%2Fpoteor2009601%2F&usq=AOvVaw1RKZIXEv0dxW/GfFhkVRVb3



TAYLOR				
Project : 2307 - Darcy road Public School		Date: 21/07/2023		
ENVIRONMENTAL -LEGAL -REGISTER -01				
Environmental Legal Register				
Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites
POEO (Clean Air) Regulation 2010	This Regulation replaces the Clean Air (Domestic Solid Fuel Heaters) Regulation 1997, Clean Air (Motor Vehicles and Motor Vehicle Fuels) Regulation 1997, Clean Air (Plant and Equipment) Regulation 1997 and the Protection of the Environment Operations (Control of Burning) Regulation 2000 POEO (Clean Air) Regulation 2002			http://www.austlii.edu.au/au/legis/nsw/consol_reg/poteoar2002601/
	In relation to motor vehicles, the regulation deals with the emission of air impurities, including excessive smoke from motor vehicles.	Keep vehicles maintained to minimise air pollution and avoid a "smoky vehicle" fine.	Environmental Inspection checklist Pre-start checks on plant	
	In relation to Plant and Equipment, the regulation sets maximum limits on emissions from activities and plant for a number of substances, including chlorine, dioxins furans, smoke, solid particles and sulphur.	Maintain plant and equipment to minimise air pollution		
	In relation to the control of burning, the regulation controls burning in the open or in incinerators in local government areas, prohibits the burning of certain articles (including tyres, paint and solvent containers, and certain treated timbers), and imposes a general duty on persons to prevent or minimise air pollution when burning in the open or in an incinerator	General Policy at Taylor Construction Group is no burning off at site.		http://www.legislation.nsw.gov.au/fra/gview/inforce/subordleg+428+2010+whole+0+N?tocnav=y
POEO (Noise Control) Regulation 2008	This Regulation repeals and remakes, with minor amendments, the provisions of the Protection of the Environment Operations (Noise Control) Regulation 2000: - the sounding of sirens and similar devices and the use of sound systems on vessels, - the emission of noise from the engines or exhausts of motor vehicles and vessels, - the maintenance of noise control equipment on motor vehicles and vessels, - the issue of defective vehicle notices and defective vessel notices.	Noise emissions from machinery and activities.	Environmental Inspection checklist Pre-start checks on plant	www.austlii.edu.au/au/legis/nsw/consol_reg/poteocr2008693/ http://www.environment.nsw.gov.au/noise/



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ENVIRONMENTAL -LEGAL -REGISTER -01							
Environmental Legal Register							
Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites			
	- the times during which it is not permissible to use certain articles if they emit noise that can be heard in any residential premises, - the inspection and testing procedures for the purpose of determining noise emission levels of certain motor vehicles, motor vehicle accessories, vessels, articles or equipment						
POEO (Penalty Notices) Regulation 2004	This Regulation: - sets out the offences under the <i>Protection of the Environment Operations Act 1997</i> and related Acts and regulations for which penalty notices may be issued, and the amount of such fines; - specifies the organisations authorised to issue penalty notices for particular offences; and - authorises the service of a penalty notice relating to an offence, applying to an owner of a motor vehicle or vessel, on the owner without naming the address of the owner and by leaving the penalty notice on that vehicle or vessel.	Environmental protection offences and penalties, and a duty to notify of environmental harm, apply to all personnel working on projects.		www.austlii.edu.au/au/legis/nsw/consol_reg/poteonr2004710/			
POEO (Waste) Regulation 2005	Schedule 1 of the regulation sets out the types of waste to which waste tracking requirements apply.	Certain chemicals used or generated may be subject to tracking requirements in this regulation. If waste tracking requirements apply, waste dockets and other records must be kept	Periodic (monthly) review of project waste dockets and records to ensure compliance with tracking requirements.	http://www.austlii.edu.au/au/legis/nsw/consol_reg/poteor2005609/			
Protection of the Environment Operations Amendment (Scheduled Activities and Waste) Regulation 2008 (Note – part of 2005 Regulation)	This framework uses a mix of legislative, policy, educative and economic tools to encourage waste avoidance and the further recovery of resources. This new framework includes:	Altered definitions of waste categories and disposal requirements (since April 2008). If using recovered resources (eg recycled asphalt, etc), ensure material meets threshold contaminant requirements (obtain from supplier prior to use)		www.environment.nsw.gov.au/waste	www.austlii.edu.au/au/legis/nsw/consol_reg/poteor2005609/		



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Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites
	- Fewer and simpler licensing categories for waste; - A streamlined waste classification system; - New resource recovery licensing categories and resource recovery exemptions; and - Clearer requirements for managing asbestos and clinical waste. The waste regulatory framework is administered under the principal legislation of the Protection of the Environment Operations Act 1997 and the Waste Avoidance and Resource Recovery Act 2001.	includes 2011 amendment		http://www.environment.nsw.gov.au/waste/classification.htm http://www.environment.nsw.gov.au/waste/RRecoveryExemptions.htm http://www.legislation.nsw.gov.au/sessionalview/sessional/subordleg/2011-151.pdf
Protection of the Environment Operations (Underground Petroleum Storage Systems Regulation 2008)	Regulation requires that underground petroleum storage tanks must not be commissioned unless it has been properly designed, installed and equipped, and integrity test performed. A storage system must not be used unless groundwater monitoring wells are installed on the storage site and these are not to be installed unless properly designed. The storage system must not be used unless an environment protection plan is in place and must be used in accordance with that plan. (for detail, of plan requirements refer to clause 19) Note - this requirement will apply to old tanks from June 2009. Groundwater monitoring requirements on old storage tanks will come be required from June 2011 (Clause 21) Loss detection procedures must be in place and acted upon if any loss is detected (clause 22) Records must be kept for at least 7 years	The regulation generally will only apply to TPG if it owns or operates sites with Underground Petroleum Storage Systems (UPSSs). When working on sites with UPSTs, ensure location is known, and that client can provide details on locations of groundwater monitoring wells, and other required information	If UPSSs are owned or operated by TCG, extensive monitoring would be required in accordance with an Environmental Protection Plan specifically relating to the tank. Periodic evaluations would be conducted against the Plan.	www.austlii.edu.au/au/legis/nsw/consol_reg/poteopssr2008983/ http://www.environment.nsw.gov.au/clm/upss.htm



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Environmental Legal Register				
Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites
Contaminated Land Management Act 1997 Contaminated Land Management Amendment Act 2008	The main objective of this Act is to establish a process for investigating and remediating land areas where contamination presents a significant risk of harm to human health or some other aspect of the environment. The amendment Act strengthens EPA/DECC powers in relation to contaminated land. Under this act DECC has the power to: • Declare an investigation site and order and investigation • Declare a remediation site and order remediation to take place • Agree to a voluntary proposal to investigate or remediate a site	Environmental Hygienist may be engaged to provide advice , reports and monitor activities when undertaking work on contaminated sites is required .	If contaminated land is likely to be encountered, measures for testing, handling and disposing of contaminated spoil are in the Project Environmental Management Plan . Testing is undertaken to ensure compliance.	http://www.austlii.edu.au/au/legis/nsw/consol_act/clma1997238/ http://www.austlii.edu.au/au/legis/nsw/consol_act/clmaa2008318/sch1.html http://www.environment.nsw.gov.au/clm/
Contaminated Land Management Regulation 2008	This Regulation prescribes a number of matters for the purposes of the Contaminated Land Management Act 1997 , including: • the content of site auditors' annual returns; • the form to be used when reporting contamination; and • the amount which the EPA may recover for its costs incurred in relation to investigation and remediation orders.	Minimal relevance.	N/A	http://www.austlii.edu.au/au/legis/nsw/consol_reg/clmr2008329/
Environmentally Hazardous Chemicals Act 1985	The purpose of this Act is to control chemicals that are environmentally hazardous. DECC may make chemical control orders (CCOs) with respect to assessed chemicals or declared chemical wastes. The CCOs may regulate the manufacture, processing, conveying, buying, selling or disposal of chemical or declared waste. A CCO may prohibit activities in relation to declared chemical wastes, except under the authority of a licence issued by DECC.	Certain chemicals used or generated may be subject to handling and disposal requirements in this Act. Chemicals subject to this Act include Dioxin wastes, Asbestos wastes, PCBs, and organochlorine pesticide wastes. It is unlikely that Taylor Construction Group activities would generate hazardous wastes covered by a CCO	Measures for identification, handling, disposal of hazardous wastes are in the Project Environmental Management Plan .	http://www.austlii.edu.au/au/legis/nsw/consol_act/ehca1985373/
Environmentally	This Regulation:	No relevance.		



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Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites
Hazardous Chemicals Regulation 2008	- sets various fees in relation to assessments of technology and prescribed activities by the EPA and in relation to licences to carry on prescribed activities; - specifies the matters to be included in applications for assessment of prescribed activities, in EPA notices about assessments of chemicals, and in EPA notices about applications for licences and transfers of licences; - prescribes the information to be included in registers under the Act.			
Pesticides Act 1999	This Act promotes the protection of human health, environment, property and trade in relation to the use of pesticides. It is an offence under the Act to: - Use a pesticide that harms or damages a person or property, a non-target animal or plant; - Use a pesticide that harms a threatened species or protected animal; - Possess or use an unregistered pesticide without a permit, or contrary to the approved label; - Fail to comply with the label or permit while using a pesticide; - Keep a registered pesticide in a container without a label; - Possess or use a restricted pesticide without authorisation. DECC may make pesticide control orders which prohibit use or possession of restricted pesticides	Generally pest control would be undertaken by specialist contractors. If pesticides are applied by TPG personnel, stringent storage, handling and record keeping requirements apply. Refer to the full Act and Regulations	If pesticides are used, the requirements would be documented in the Project Environmental Management Plan for the project. Regular audits would be undertaken against the Plan, and pesticide records would be reviewed once monthly by the project manager.	www.austlii.edu.au/au/legis/nsw/consol_act/pa1999120/ http://www.environment.nsw.gov.au/pesticides/



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Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites
Pesticides Regulation 1995	This regulation requires that any person or organisation applying a chemical in a public place must apply this chemical as described in their Notification Plan for Pesticide Use in Public Places. The regulation makes it compulsory for all people who use pesticides for commercial or occupational purposes to make a record of their pesticide use.	As above	As above	www.austlii.edu.au/au/legis/nsw/consol_reg/pr1995211/
Environmental Planning and Assessment Act 1979 (EP&A Act)	The main objective of the EP&A Act is to ensure that proper management and development of land is undertaken incorporating the ecologically sustainable development principles. To achieve this the EP&A Act: - Ensures that development consent is obtained prior to construction; - Ensures compliance with planning consents and conditions associated with the consent; - Ensures environmental assessment is undertaken prior to development consent; - Has provision for penalties to be issued should development conditions be breached. Also has Planning instruments such as Local Environmental Plans (LEPs)	Development Approval / Consent required prior to construction as per EP&A Act and as detailed in LEPs. Need to comply with Conditions of Consent once granted	Compliance audits / checks against development consent conditions (likely to be done by client)	www.austlii.edu.au/au/legis/nsw/consol_act/epaaa1979389/
Waste Avoidance and Resource Recovery Act 2001	This Act promotes waste avoidance and resource recovery by: - Encouraging efficient use of resources in accord with ecologically sustainable principles; - Promoting the “Avoid, reuse, recycle, dispose” hierarchy; - Ensuring industry has a responsibility for reducing and dealing with waste; - Providing penalties for breaches of this Act.	Waste is generated during construction. The principles of the Act are applied to all aspects of construction to reduce impacts from waste. A Waste Management Plan may be required to be prepared as part of conditions of consent.	Regular environmental inspections using standard checklist Audit against Waste Management Plan (if applicable) or against Project Environmental Management Plan	www.austlii.edu.au/au/legis/nsw/consol_act/waarra2001364/ http://www.environment.nsw.gov.au/waste/



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Environmental Legal Register					
Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites	
Threatened Species Conservation Act 1995	This Act outlines the protection of threatened species, communities and critical habitat. An independent Scientific Committee determines which species, populations and ecological communities should to be listed as endangered, vulnerable or extinct, and also determines key threatening processes. Any animal, plant or habitat that is listed as endangered, vulnerable or threatened must not be harmed or damaged, unless planning approvals or licences from DECC have been granted.	Construction activities may be undertaken in areas where threatened species, communities and critical habitat exit. The presence of these should be identified by the Environmental Impact Assessment process prior to construction – usually identified by the client	If threatened species have been identified in the Environmental Impact Assessment (usually by client), the requirements would be documented in the Project Environmental Management Plan for the project. Regular audits would be undertaken against the Plan.	www.austlii.edu.au/au/legis/nsw/consol_act/tsca1995323/ http://www.environment.nsw.gov.au/threatenedspecies/	
Native Vegetation Act 2003	This Act regulates the clearing of native vegetation on all land in NSW except for National Parks, State Forests and reserves and urban areas. Native vegetation is any species of vegetation that existed in	Approval is generally required for clearing native vegetation, although some exceptions apply.		www.austlii.edu.au/au/legis/nsw/consol_act/nva2003194/ http://www.environment.nsw.gov.au/vegetation/	
Noxious Weeds Act 1993	This Act requires occupiers of land to control noxious weeds required under control categories specified in relation to the weeds concerned. There are five classes of noxious weeds: Class 1 – State Prohibited Weeds: must not be introduced/become established in NSW; Class 2 – Regionally Prohibited Weeds: must not be introduced or become established in parts of NSW; Class 3 – Regionally Controlled Weeds: area that these weeds occupy must be reduced; Class 4 – Locally Controlled Weeds: impact on economy, community, environment must be minimised; Class 5 – Restricted Plants: must not be introduced or allowed to spread from current areas. Notices ordering the eradication of a classified weed may be served.	Classified weeds that are present on project sites or establish themselves during construction must be eradicated.	If noxious weeds are present, regular inspections should be carried out as part of the environmental inspection process	www.austlii.edu.au/au/legis/nsw/consol_act/nwa1993182/ http://www.environment.nsw.gov.au/pestsweeds/	



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Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites
National Parks and Wildlife Act 1974	Under this Act, NPWS is responsible for the care, control and management of all national parks, historic sites, nature reserves, reserves, Aboriginal areas and state game reserves. The Act governs various activities including: - Protection of flora and fauna; - Protection of Aboriginal heritage; - Licences and approvals to modify or destroy flora, fauna or Aboriginal heritage; - Penalties for breaches of the Act.	Relates to any Aboriginal heritage or relics, and protection of flora and fauna.	If works are undertaken in areas with potential Aboriginal Heritage, These should be identified in the Environmental Impact Assessment and related documents, and incorporated into the PEMP. Regular inspections and audits would be undertaken to ensure compliance.	www.austlii.edu.au/au/legis/nsw/consol_act/npawa1974247/



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Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites
Heritage Act 1977	The Heritage Act protects NSW's natural and cultural heritage including archaeological remains. If a site or place is of great significance, the Heritage Council can list it on the State Heritage Register. Items listed on the State Heritage Register are subject to the provisions of the <i>Heritage Act 1977</i>, which protects items of State heritage significance. Items 50 years or older are also considered heritage items and need to be managed as such. The Act prohibits the demolition, damage or development of or around any heritage item without approval from the Heritage Office.	Minimal relevance. Requirements will be triggered if there are natural or culturally significant sites or places. These should be identified through the Environmental Impact Assessment (EIA) process (eg – EIA, REF)	If works are undertaken in areas with potential European Heritage, these should be identified in the Environmental Impact Assessment and related documents, and incorporated into the PEMP. Regular inspections and audits would be undertaken to ensure compliance.	http://www.austlii.edu.au/au/legis/nsw/consol_act/ha197786/
Heritage Regulations 2005	The Heritage Regulation 2005: - restates the minimum standards for the maintenance and repair of items on the State Heritage Register set in the previous regulation; and - provides for equitable and adequate funding for heritage protection through cost recovery for statutory processing..	Minimal relevance.		
Water Act 1912	An Act consolidating water rights, water and drainage and artesian wells. Provisions include: - To obtain a licence to sink or alter an artesian bore; - Not to waste water taken from dams, lakes, artesian wells and bores; - Not to unlawfully interfere with sub-surface water or obstruct its flow.	Minimal relevance.	N/A	
Water Management Act 2000 and Water Management (General) Regulation 2004	The <i>Water Management Act 2000</i> is the main piece of water legislation in NSW and governs: - Extraction of water from waterways and bores - The construction of water storage and supply structures	Approvals may be required to undertake water supply works, drainage works or floodplain works	If water is extracted from waterways, this would be addressed in the EIA and PEMP. Audits of the PEMP would be undertaken to determine compliance	



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Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites
	- Development or building within the proximity of waterways - A licensing system established under the <i>Water Management Act 2000</i> allows for regulated usage of water resources The WMA Act consolidates the Water Act 1912 and the Rivers and Foreshores Improvement Act 1948.			http://www.austlii.edu.au/au/legis/nsw/consol_act/wma2000166/
<i>Rivers & Foreshore Improvement Act 1948</i>	<i>This Act has been repealed and is replaced by the Water Management Act 2000</i>	Nil - repealed	N/A	
Commonwealth Legal Requirements				
<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth Act)</i> (EPBC Act)	This Act aims to protect the environment, particularly matters of National Environmental Significance. Approval is required for actions that are likely to have a significant impact on: - a matter of national environmental significance; - environment of Commonwealth land (even if taken outside Commonwealth land); - environment anywhere in the world if the action is undertaken by the Commonwealth. Permits are required under the EPBC Act for: - certain activities in Commonwealth reserves; - activities that affect listed species or communities in Commonwealth areas; cetaceans in Commonwealth waters and outside Australian waters; - the import and export of wildlife.	Approvals may be required when working in areas that may have matters with national significance. Examples may include: * Work on Commonwealth land that may have a significant impact on the environment Working in areas that are listed as: *World Heritage property * National Heritage places * Listed wetlands (Ramsar) * Threatened species or communities * Migratory species * Nuclear actions * Marine Environments	Specific requirements for complianceshould be addressed in Environmental Impact assessments and Project Environmental Management Plans. Audits and inspections would be undertaken against the stated requirements.	http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/



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Environmental Legal Register				
Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites
	The Act contains compliance and enforcement mechanisms such as court injunctions, required environmental audits, strict civil and criminal penalties, remediation of environmental damage, liability of executive officers, and publicising contraventions.			
Other Requirements				
NSW Environmental Management System Guidelines Edition 2, 2007	The guidelines are published by the NSW Government to provide a framework for managing environmental issues on construction sites	Taylor Construction Group is seeking to gain accreditation to the NSW EMS Guidelines. The Integrated HSE management system and the Project Environmental Management Plan templates have been designed and prepared to meet these requirements		

** Note: This Legal Register provides guidance on the applicability of certain Environmental Acts and Regulations at Taylor Construction Group and should not be seen as legal advice. Should legal advice be required, appropriate legal firms should be engaged.*

Appendix 8 – Construction Noise and Vibration Management Plan



Darcy Road Public School

Construction Noise and Vibration Management Sub Plan (CNVMSP)

Taylor Construction

Report number: 230339-Darcy Rd PS-CNVMSP-R2

Date: 15 January 2024

Version: For Construction

Project Number: 230339

DOCUMENT CONTROL

Project Name	Darcy Road Public School
Project Number	230339
Report Reference	230339-Darcy Rd PS-CNVMSR-R2
Client:	Taylor Construction

Revision	Description	Reference	Date	Prepared	Checked	Authorised
0	Issue 1	230339-Darcy Rd PS-CNVMSR-R0	12 July 2023	Ben White	Matt Furlong	Ben White
1	Issue 2	230339-Darch Rd PS-CNVMSR-R1	20 Sep2023	Ben White	Matt Furlong	Ben White
2	Issue 3	230339-Darch Rd PS-CNVMSR-R2	15 Jan 2024	Ben White	Matt Furlong	Ben White

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This report has been prepared by Pulse White Noise Acoustics Pty Ltd with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with the Taylor Construction. Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Taylor Construction
No warranties or guarantees are expressed or should be inferred by any third parties.
This report may not be relied upon by other parties without written consent from Pulse White Noise Acoustics.

This report remains the property of Pulse White Noise Acoustics Pty Ltd until paid for in full by the client, Taylor Construction.

Pulse White Noise Acoustics disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

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1 INTRODUCTION

Pulse White Noise Acoustics (PWNA) has been engaged to prepare a Construction Noise and Vibration Management Sub Plan (CNVMSP) for the construction works associated with the proposed alterations and additions to Darcy Road Public School located at 98A Darcy Road, Wentworthville, NSW.

Onsite unattended and attended noise levels have previously been determined for the project and included in the NDY *Acoustic Report, School Infrastructure NSW, Darcy Road Public School, State Significant Development Application (SSDA) – Noise and Vibration Impact Assessment* revision 8.0 – SSDA DPE Update and dated 25 August 2023 and included in the proposed SSD documentation. The details of the acoustic survey included in the NDY report have been used in this assessment.

A glossary of acoustic terminology used throughout this report is included in Appendix A.

The author of this report is a director of Pulse White Noise Acoustics who is a member of the Australian Acoustic Society, details including Ben's CV and membership of the AAS are included in Appendix B.

1.1 Site Layout and Development Overview

This report has been prepared on behalf of the NSW Department of Education (DoE) and School Infrastructure NSW (SINSW) to support the State Significant Development Application (SSD-49073460) for the upgrade of Darcy Road Public School.

Darcy Road Public School is located at 98A Darcy Road, Wentworthville within the Parramatta Local Government Area. Darcy Road Public School comprises 11 separate allotments, which have a combined area of 23,531m², forming an irregular and consolidated development parcel.

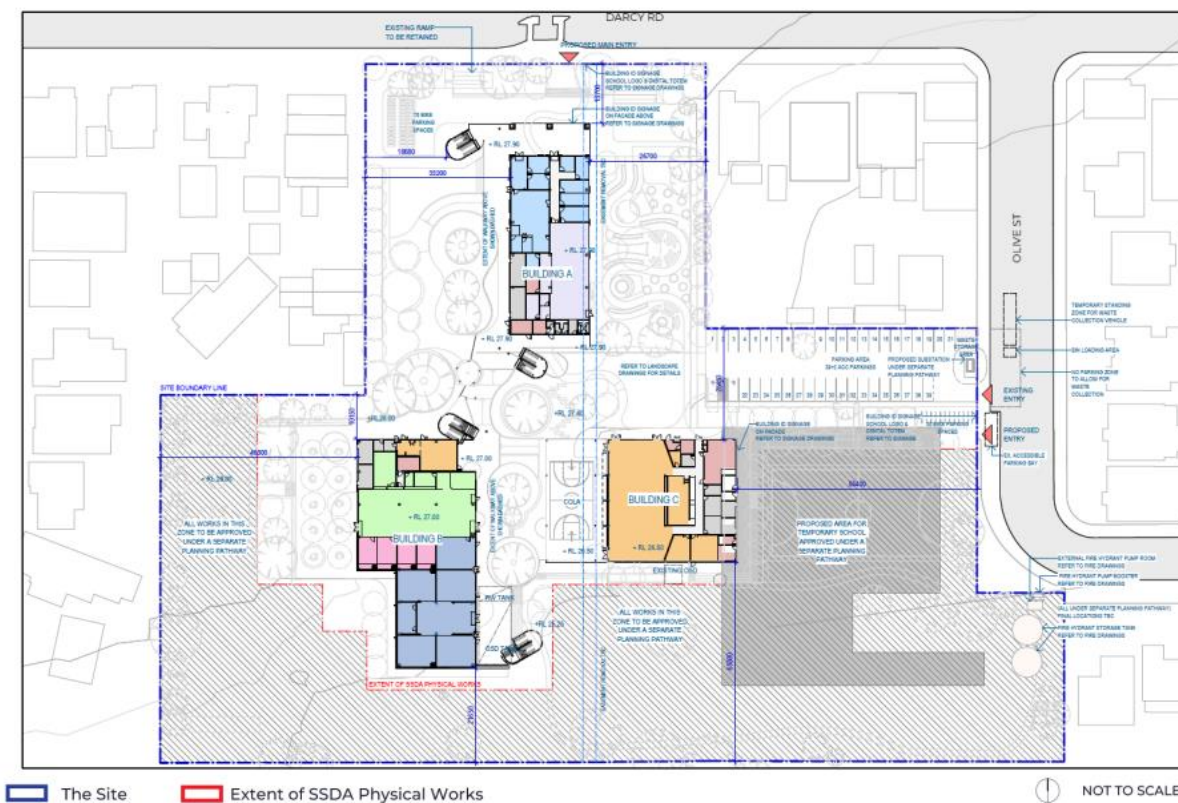
The legal description is outlined below:

- Lot 6-7 in DP 10955;
- Lot 1 in DP 782155;
- Lot A in DP 383734;
- Lot 1 in DP 122893;
- Lot 1 in DP 160134; and
- Lots 12-16 in DP 16811.

Darcy Road Public School is the subject site of this SSDA, however the extent of physical works is limited and is not located across the entire site. The subject site, and the extent of SSDA physical works are shown in Figure 1 below.

There is a separate planning approval for a temporary school and associated infrastructure to be located on/near the existing oval on the southeast of the site. Indicative location of the temporary school and associated infrastructure is shown below in Figure 1.

Figure 1 Site Plan and the extent of SSDA physical works



The development application pathway for the project consists of an SSDA pursuant to section 4.36 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The project involves the upgrade of Darcy Road Public School to accommodate 1,000 students and 25 new permanent staff. The proposal includes the following:

- Demolition of all buildings associated with the existing school, except for the existing hall which will be retained and refurbished;
- Construction of a new school comprising two new interconnected buildings up to four storeys,
- Construction of new open spaces and landscaping;
- Refurbishment of the existing hall including demolition of existing ancillary features to the eastern side of the building and extension of the hall into the existing covered outdoor learning area; and
- Extension of the existing car park.

The existing hard courts and oval within the broader Darcy Road Public School are outside of the extent of SSDA physical works.

During the construction period, the majority of the school will be relocated to a temporary area using demountable buildings in accordance with a separate planning approval outside of the SSDA boundary.

Upon completion of the SSDA works, Darcy Road Public School proposes to accommodate 1,000 students, assisting in alleviating current enrolment pressures within the Parramatta LGA. Darcy Road Public School will contain high quality collaborative learning spaces and associated facilities, creating future focused education through new and sustainable buildings.

The completed Darcy Road Public School will offer:

- facilities that are readily accessible and flexible to meet the demands of an evolving curriculum in line with future-focused learning principles
- flexible and well-connected teaching and learning spaces that enable a variety of teaching and learning practices
- spaces that are engaging and supportive for students and teachers
- technology-rich settings with an emphasis on mobility and flexibility
- a healthy and environmentally sustainable environment
- innovative, connected outdoor spaces that enable play and collaborative learning
- connected open space, creating a welcoming and accessible school with indoor and outdoor teaching and learning opportunities

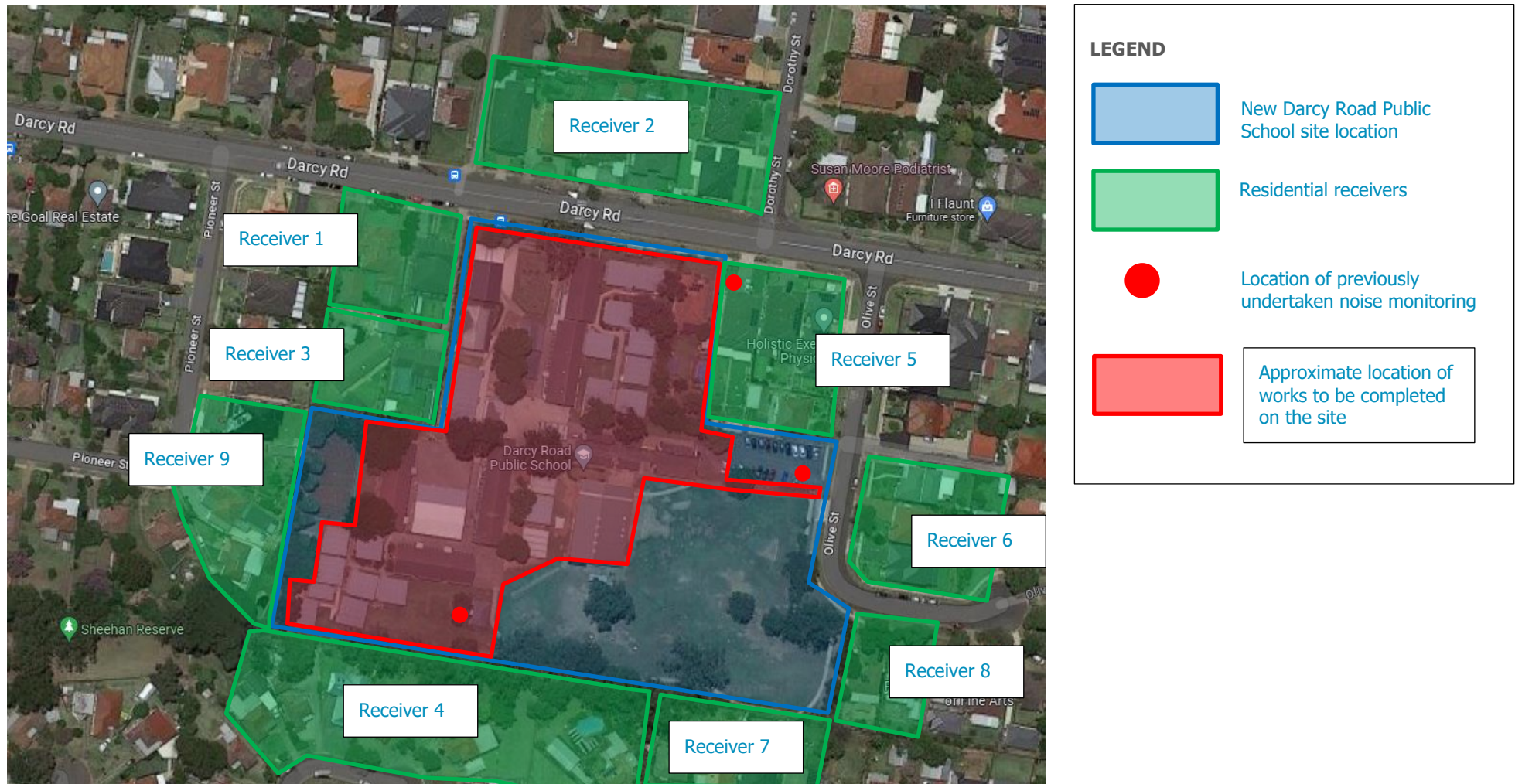
New teaching spaces will incorporate principles of energy efficiency and ecologically sustainable development (ESD) including:

- passive design principles
- thermal performance and comfort
- natural lighting
- water and recycling management

Pending approval, works are programmed to commence in late-2023, with completion of the Main Works programmed for late-2025.

The nearest sensitive receivers to the site have been identified below.

- | | |
|--------------------|--|
| Receiver 1: | Residential receivers neighbouring the site to the north west, including the dwelling at 100A Darcy Road. |
| Receiver 2: | Residential receivers located opposite the site to the north of Darcy Road, including the dwelling at 119 Darcy Road. |
| Receiver 3: | Residential receivers neighbouring the site to the west, including the dwelling at 10 Pioneer Street. |
| Receiver 4: | Residential receivers neighbouring the site to the south, including the dwelling at 16 Graham Avenue. |
| Receiver 5: | Residential receivers neighbouring the site to the north east, including the dwelling at 98 Darcy Road. |
| Receiver 6: | Residential receivers located to the east of the site on Olive Street including the dwelling at 7 Olive Street. |
| Receiver 7: | Residential receivers located to the south east of the site on Fyall Avenue including the dwelling at 12 Fyall Avenue. |
| Receiver 8: | Residential receivers located to the east of the site on Olive Street, including the dwelling at 4 Olive Street. |
| Receiver 9: | Residential receivers located to the west of the site on Pioneer Street, including the dwelling at 10 Pioneer Street. |

Figure 2 Site Map, Measurement Locations and Surrounding Receivers

1.2 SSD Compliance

This report has been undertaken in accordance with the requirements of Item B15 of the project's SSD conditions of consent.

Details of conditions of consent and sections of the report which include the required items required by the consent are included in the table below.

Table 1 SSD Compliance Table

SSD Condition number	Requirement	Report Reference for Satisfaction
B15	<i>B15. The Construction Noise and Vibration Management Sub-Plan must address, but not be limited to, the following:</i>	-
(a)	<i>be prepared by a suitably qualified and experienced noise expert;</i>	Ben white is a director of Pulse White Noise Acoustics, Ben's CV and membership of the Australian Acoustic Society is included in Appendix B.
(b)	<i>describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009);</i>	Section 4.1
(c)	<i>describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;</i>	Section 6.1 and 6.2
(d)	<i>include strategies that have been developed with the community for managing high noise generating works;</i>	Section 6.2 and Section 6.8
(e)	<i>describe the community consultation undertaken to develop the strategies in condition B15(d);</i>	Section 6.5.5 and Appendix C
(f)	<i>include a complaints management system that would be implemented for the duration of the construction; and</i>	Section 6.5
(g)	<i>include a program to monitor and report on the impacts and environmental performance of the development and the effectiveness of the implemented management measures in accordance with the requirements of condition B1</i>	Section 6.2.2 and Section 6.3.2
<i>Note 1: For Monday to Sunday, Daytime 7:00 am – 10:00 pm; Night-time 10:00 pm – 7:00 am.</i> <i>Note 2: The L_{Aeq} is the energy average sound level. It is defined as the steady sound level that contains the same amount of acoustical energy as a given time-varying sound.</i>		

2 EXISTING ACOUSTIC ENVIRONMENT

Measured noise levels from the attended noise survey undertaken as part of the *NDY Acoustic Report, School Infrastructure NSW, Darcy Road Public School, State Significant Development Application (SSDA) – Noise and Vibration Impact Assessment* revision 8.0 – SSDA DPE Update and dated 25 August 2023 and included in the proposed SSD documentation have been used in this assessment.

As part of the *NDY Acoustic Report, School Infrastructure NSW, Darcy Road Public School, State Significant Development Application (SSDA) – Noise and Vibration Impact Assessment* background noise levels within the vicinity of the site has been undertaken including locations of noise logging (including the locations detailed in Figure 2 above). The *NDY Acoustic Report, School Infrastructure NSW, Darcy Road Public School, State Significant Development Application (SSDA) – Noise and Vibration Impact Assessment* includes an assessment which has been stated to be in accordance with the NSW EPA's *Noise Policy for Industry* (NPI, 2017).

The Rating Background Noise Level (RBL) is the background noise level used for assessment purposes and includes the 90th percentile of the daily background noise levels during each assessment period, being day, evening and night. The RBL LA90 (15minute) and LAeq noise levels presented within the *Darcy Road Public School, State Significant Development Application (SSDA) – Noise and Vibration Impact Assessment* are summarised in Table 2.

Table 2 Measured Ambient Noise Levels corresponding to the NPI's Assessment Time Periods

Measurement Location	Daytime ¹ 7:00 am to 6:00 pm		Evening ¹ 6:00 pm to 10:00 pm		Night-time ¹ 10:00 pm to 7:00 am	
	LA90 ² (dBA)	LAeq ³ (dBA)	LA90 ² (dBA)	LAeq ³ (dBA)	LA90 ² (dBA)	LAeq ³ (dBA)
Monitor Location: Including Locations to the north of the site						
Logger 1 – To the north portion of the school	46	61	44	58	37	53
Monitor Location: Including Locations to the east of the site						
Logger 2 – To the eastern portion of the school	43	69	39	52	35	46
Monitor Location: Including Locations to the south and west of the site						
Logger 3 – To the southwestern portion of the school	44	61	41	55	36	50
<i>Note 1: For Monday to Saturday, Daytime 7:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 7:00 am. On Sundays and Public Holidays, Daytime 8:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 8:00 am</i> <i>Note 2: The LA90 noise level is representative of the "average minimum background sound level" (in the absence of the source under consideration), or simply the background level.</i> <i>Note 3: The LAeq is the energy average sound level. It is defined as the steady sound level that contains the same amount of acoustical energy as a given time-varying sound.</i>						

3 PROJECTS CONDITIONS OF CONSENT

Relevant noise and vibration criteria for construction activities includes item B15 of the SSD which includes the following:

Construction Noise and Vibration Management Sub-Plan (see condition B15 for required inclusions).

B15. The Construction Noise and Vibration Management Sub-Plan must address, but not be limited to, the following:

- (a) be prepared by a suitably qualified and experienced noise expert;*
- (b) describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009);*
- (c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;*
- (d) include strategies that have been developed with the community for managing high noise generating works;*
- (e) describe the community consultation undertaken to develop the strategies in condition B15(d);*
- (f) include a complaints management system that would be implemented for the duration of the construction; and*
- (g) include a program to monitor and report on the impacts and environmental performance of the development and the effectiveness of the implemented management measures in accordance with the requirements of condition B13.*

The project has included a *Community Communication Strategy* as require in the consent, Details of the Community Communication Strategy are to be provided as part of the project submissions as required.

4 NOISE AND VIBRATION CRITERIA

Relevant noise and vibration criteria for construction activities are detailed below.

4.1 Construction Noise Objectives

Relevant construction noise objectives applicable to this project are outlined below.

4.1.1 NSW EPA (Former DECC) Interim Construction Noise Guideline (ICNG) 2009

Noise objective for construction and demolition activities are discussed in the *Interim Construction Noise Guideline* (ICNG). The ICNG also recommends procedures to address potential impacts of construction noise on residences and other sensitive land uses. The main objectives of the ICNG are summarised as follows:

- Promote a clear understanding of ways to identify and minimise noise from construction works;
- Focus on applying all “feasible” and “reasonable” work practices to minimise construction noise impacts;
- Encourage construction to be undertaken only during the recommended standard hours unless approval is given for works that cannot be undertaken during these hours;
- Streamline the assessment and approval stages and reduce time spent dealing with complaints at the project implementation stage; and
- Provide flexibility in selecting site-specific feasible and reasonable work practices in order to minimise noise impacts.

The ICNG contains a quantitative assessment method which is applicable to this project. Guidance levels are given for airborne noise at residences and other sensitive land uses.

The quantitative assessment method involves predicting noise levels at sensitive receivers and comparing them with the Noise Management Levels (NMLs). The NML affectation categories for residential receivers have been reproduced from the guideline and are listed in the table below.

Table 3 NMLs for quantitative assessment at residences

Time of Day	Noise Management Level $L_{Aeq}(15\text{minute})^{1,2}$	How to Apply
Recommended standard hours: Monday to Friday 7 am to 6 pm Saturday 8 am to 1 pm No work on Sundays or public holidays	Noise affected RBL + 10 dB	The noise affected level represents the point above which there may be some community reaction to noise. - Where the predicted or measured $L_{Aeq}(15\text{minute})$ is greater than the noise affected level, the proponent should apply all feasible and reasonable work practices to meet the noise affected level. - The proponent should also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details.
	Highly noise affected 75 dBA	The highly noise affected level represents the point above which there may be strong community reaction to noise. - Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restricting the hours that the very noisy activities can occur, taking into account: - Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools, or mid-morning or mid-afternoon for works near residences). - If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.
Outside the recommended standard hours above	Noise affected RBL + 5 dB	- A strong justification would typically be required for works outside the recommended standard hours. - The proponent should apply all feasible and reasonable work practices to meet the noise affected level. - Where all feasible and reasonable practices have been applied and noise is more than 5 dB above the noise affected level, the proponent should notify the community.
<i>Note 1 Noise levels apply at the property boundary that is most exposed to construction noise, and at a height of 1.5 m above ground level. If the property boundary is more than 30 m from the residence, the location for measuring or predicting noise levels is at the most noise-affected point within 30 m of the residence. Noise levels may be higher at upper floors of the noise affected residence.</i> <i>Note 2 The RBL is the overall single-figure background noise level measured in each relevant assessment period (during or outside the recommended standard hours). The term RBL is described in detail in the NSW Industrial Noise Policy (EPA 2000).</i>		

Construction noise levels at other noise receivers are outlined below:

- Construction noise levels within classrooms other educational institutions is not recommended to exceed 45dBA $L_{Aeq,15\text{minute}}$ when measured internally.
- Construction noise levels at offices and retail outlets are not recommended to exceed 70dBA $L_{Aeq,15\text{minute}}$ when measured externally.

Based on the measured background noise levels summarised in section 0, and the NMLs outlined above, the construction noise criteria to be used in this assessment are listed in Table 4.

Table 4 NMLs as basis for the acoustic assessment

Receiver Types	NML, dB L _{Aeq} (15minute)		
	<u>Standard Hours</u> Monday to Friday: 7:00am to 6:00pm Saturday: 8:00am to 1:00pm		<u>Outside Standard Hours</u> All hours not listed in the adjacent column.
Residential receivers located to the north of the site, including locations 1, 2, 3 and 5	<u>NAFL: 56</u> (RBL (46) + 10dB)	<u>HNAL: 75</u>	RBL + 5dB
Residential receivers located to the east of the site, including locations 6, 7, and 8	<u>NAFL: 53</u> (RBL (43) + 10dB)		
Residential receivers located to the south and west of the site, including locations 4 and 9	<u>NAFL: 54</u> (RBL (44) + 10dB)		

4.2 Vibration Criteria

Effects of ground borne vibration on buildings may be segregated into the following three categories:

- Human comfort – vibration in which the occupants or users of the building are inconvenienced or possibly disturbed.
- Effects on building contents – where vibration can cause damage to fixtures, fittings and other non-building related objects.
- Effects on building structures – where vibration can compromise the integrity of the building or structure itself.

4.2.1 Vibration Criteria – Human Comfort

Vibration effects relating specifically to the human comfort aspects of the project are taken from AV-TG. This type of impact can be further categorised and assessed using the appropriate criterion as follows:

- Continuous vibration – from uninterrupted sources.
- Impulsive vibration – up to three instances of sudden impact e.g., dropping heavy items, per monitoring period.
- Intermittent vibration – such as from drilling, compacting or activities that would result in continuous vibration if operated continuously.

Table 5 Continuous vibration acceleration criteria (m/s²) 1 Hz-80 Hz

Location	Assessment period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Critical working areas (e.g. hospital operating theatres, precision laboratories)	Day or night-time	0.0050	0.010	0.10	0.20
Residences	Daytime	0.010	0.0071	0.020	0.014
	Night-time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day or night-time	0.020	0.014	0.040	0.028
		0.04	0.029	0.080	0.058
Workshops	Day or night-time	0.04	0.029	0.080	0.058

Table 6 Impulsive vibration acceleration criteria (m/s²) 1 Hz-80 Hz

Location	Assessment period	Preferred Values		Maximum Values	
		z-axis	x- and y-axis	z-axis	x- and y-axis
Critical working areas (e.g. hospital operating theatres, precision laboratories)	Day or night-time	0.0050	0.010	0.10	0.20
Residences	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day or night-time	0.64	0.46	1.28	0.92
Workshops	Day or night-time	0.64	0.46	1.28	0.92

Table 7 Intermittent vibration impacts criteria (m/s^{1.75}) 1 Hz-80 Hz

Location	Daytime		Night-time	
	Preferred Values	Maximum Values	Preferred Values	Maximum Values
Critical working areas (e.g. hospital operating theatres, precision laboratories)	0.10	0.20	0.10	0.20
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

4.2.2 Vibration Criteria – Building Contents and Structure

The vibration effects on the building itself are assessed against international standards as follows:

- For transient vibration: British Standard BS 7385: Part 2-1993 "*Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration*" (BSI 1993); and
- For continuous or repetitive vibration: German DIN 4150: Part 3 – 1999 "*Effects of Vibration on Structure*" (DIN 1999).

4.2.3 Standard BS 7385 Part 2 - 1993

For transient vibration, as discussed in standard BS 7385 Part 2-1993, the criteria are based on peak particle velocity (mm/s) which is to be measured at the base of the building. These are summarised below.

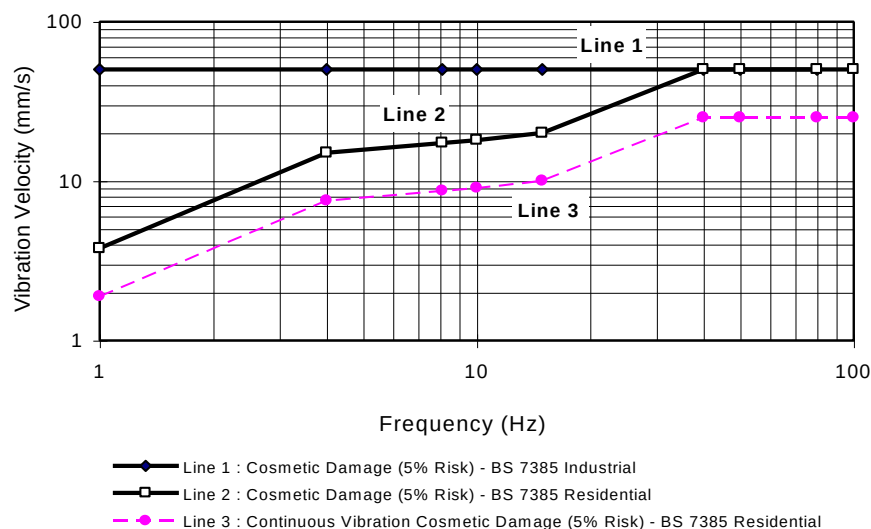
Table 8 Transient vibration criteria as per standard BS 7385 Part 2 - 1993

Line in Figure 3	Type of Building	Peak Component Particle Velocity in Frequency Range of Predominant Pulse	
		4 Hz to 15 Hz	15 Hz and Above
1	Reinforced or framed structures Industrial and heavy commercial buildings.	50 mm/s at 4 Hz and above	
2	Unreinforced or light framed structures Residential or light commercial type buildings	15 mm/s at 4 Hz increasing to 20 mm/s at 15 Hz	20 mm/s at 15 Hz increasing to 50 mm/s at 40 Hz and above

Standard BS 7385 Part 2 – 1993 states that the values in Table 8 relate to transient vibration which does not cause resonant responses in buildings.

Where the dynamic loading caused by continuous vibration events is such that it results in dynamic magnification due to resonance (especially at the lower frequencies where lower guide values apply), then the values in Table 8 may need to be reduced by up to 50% (refer to Line 3 in Figure 3).

Figure 3 BS 7385 Part 2 – 1993, graph of transient vibration values for cosmetic damage



In the lower frequency region where strains associated with a given vibration velocity magnitude are higher, the recommended values corresponding to Line 2 are reduced. Below a frequency of 4 Hz, where a high displacement is associated with the relatively low peak component particle velocity value, a maximum displacement of 0.6 mm (zero to peak) is recommended. This displacement is equivalent to a vibration velocity of 3.7 mm/s at 1 Hz.

The standard also states that minor damage is possible at vibration magnitudes which are greater than twice those given in Table 8, and major damage to a building structure may occur at values greater than four times the tabulated values.

Fatigue considerations are also addressed in the standard and it is concluded that unless the calculation indicates that the magnitude and number of load reversals is significant (in respect of the fatigue life of building materials) then the values in Table 8 should not be reduced for fatigue considerations.

4.2.4 Standard DIN 4150 Part 3 - 1999

For continuous or repetitive vibration, standard DIN 4150 Part 3-1999 provides criteria based on values for peak particle velocity (mm/s) measured at the foundation of the building; these are summarised in Table 9. The criteria are frequency dependent and specific to particular categories of structures.

Table 9 Structural damage criteria as per standard DIN 4150 Part 3 - 1999

Type of Structure	Peak Component Particle Velocity, mm/s			Vibration of horizontal plane of highest floor at all frequencies
	Vibration at the foundation at a frequency of 1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz ¹	
Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
Structures that, because of their sensitivity to vibration, do not correspond to those listed in lines 1 and 2 and are of great intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8
<i>Note 1: For frequencies above 100Hz, at least the values specified in this column shall be applied.</i>				

4.3 Construction Traffic Noise Criteria

For existing residences and other sensitive land uses affected by additional traffic on existing roads, the NSW *Road Noise Policy (RNP)* states that for noise associated with increased road traffic generated by land use developments, any increase in the total traffic noise level should be limited to 2 dB during both day and night-time periods. An increase of 2 dB represents a minor impact that is considered barely perceptible to the average person.

5 NOISE AND VIBRATION ASSESSMENT

5.1 Construction Noise Assessment

Sound power levels have been predicted for the construction tasks identified in the project program. The equipment anticipated for use in each task is based on previous project experience. The sound power levels for the equipment likely to be used for each of the listed tasks are provided in Table 10 below.

Table 10 Summary of predicted sound power levels

Tasks	Equipment	Sound Power Levels (dBA re 1pW)	Aggregate Sound Power Level per Task (dBA re 1pW)
Site Establishment Works	Mobile crane	110	113
	Power hand tools	109	
	Semi Rigid Vehicle ¹	105	
Ground Works and Demolition	Excavator	112	119
	Hand held jack hammer ¹	111	
	Dump truck ¹	104	
	Concrete saw ¹	114	
	Skid steer	110	
	Power hand tools	109	
Structure	Hand held jack hammer ¹	106	117
	Concrete saw ¹	114	
	Power hand tools	109	
	Welder	101	
	Concrete pump truck	110	
	Concrete agitator truck	108	
Internal Works	Power hand tools	109	109
Common and External Works	Concrete agitator truck	108	117
	Saw cutter ¹	104	
	Dump truck ¹	104	
	Concrete saw ¹	114	
	Power hand tools	109	

Note 1: An assumed time correction has been applied, this being 5 minutes of operation in any 15-minute interval.

5.2 Predicted Construction Noise Levels

Predicted construction noise levels are presented below for each of the surrounding receivers in accordance with the NSW EPA ICNG.

Note:

- Predicted noise levels presented below are given in a range, this includes the expected minimums as well as the maximums.
- With regards to the maximum noise levels in the range, these are typically experienced when plant/works are within close proximity to a boundary. In our experience whilst these levels above NML's and considered intrusive they will only occur for a short time and is not a representation of noise levels during the entire construction period.

Table 11 Receiver 1 – Summary of preliminary predicted construction noise levels – Residence to the north

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Criteria dBA L _{Aeq} 15 minutes	Summary of Result
Site Establishment Works	Mobile crane	113	60 to 76	63 to 79	<u>Standard Construction Hours</u> 39 + 10 = <u>49</u> <u>Highly Noise Affected Level</u> <u>Standard Construction Hours</u> <u>75</u>	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Mitigations of construction noise required to be undertaken including measures detailed in this report.
	Power hand tools		59 to 75			
	Semi Rigid Vehicle		55 to 71			
Ground Works and Demolition	Excavator	119	62 to 78	68 to 84		
	Handheld jack hammer		56 to 72			
	Dump truck		54 to 70			
	Concrete saw		64 to 80			
	Skid steer		60 to 76			
	Power hand tools		59 to 75			
Structure	Handheld jack hammer	117	56 to 72	67 to 83		
	Concrete saw		64 to 80			
	Power hand tools		59 to 75			
	Welder		51 to 67			
	Concrete pump truck		60 to 76			
	Concrete agitator truck		58 to 74			
Internal Works	Power hand tools	109	59 to 75	59 to 75		
Common and External Works	Concrete agitator truck	117	58 to 74	66 to 83		
	Saw cutter		54 to 70			
	Dump truck		54 to 70			
	Concrete saw		64 to 80			
	Power hand tools		59 to 75			

Table 12 Receiver 2 – Summary of predicted construction noise levels – Residence to the north of the site opposite on Darcy Road

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Criteria dBA L _{Aeq} 15 minutes	Summary of Result
Site Establishment Works	Mobile crane	113	57 to 72	60 to 76	<u>Standard Construction Hours</u> 38 + 10 = 48 <u>Highly Noise Affected Level</u> <u>Standard Construction Hours</u> 75	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Mitigations of construction noise required to be undertaken including measures detailed in this report.
	Power hand tools		56 to 71			
	Semi Rigid Vehicle		52 to 68			
Ground Works and Demolition	Excavator	119	59 to 74	65 to 81		
	Handheld jack hammer		53 to 69			
	Dump truck		51 to 67			
	Concrete saw		61 to 77			
	Skid steer		57 to 72			
	Power hand tools		56 to 71			
Structure	Handheld jack hammer	117	53 to 69	64 to 80		
	Concrete saw		61 to 77			
	Power hand tools		56 to 71			
	Welder		48 to 63			
	Concrete pump truck		57 to 72			
	Concrete agitator truck		55 to 70			
Internal Works	Power hand tools	109	56 to 71	56 to 71		
Common and External Works	Concrete agitator truck	117	55 to 70	64 to 79		
	Saw cutter		51 to 67			
	Dump truck		51 to 67			
	Concrete saw		61 to 77			
	Power hand tools		56 to 71			

Table 13 Receiver 3 - Summary of predicted construction noise levels – Residence located to the west of the site on Pioneer Street

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Criteria dBA L _{Aeq} 15 minutes	Summary of Result
Site Establishment Works	Mobile crane	113	60 to 76	63 to 79	<u>Standard Construction Hours</u> 39 + 10 = 49 <u>Highly Noise Affected Level</u> <u>Standard Construction Hours</u> 75	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Mitigations of construction noise required to be undertaken including measures detailed in this report.
	Power hand tools		59 to 75			
	Semi Rigid Vehicle		55 to 71			
Ground Works and Demolition	Excavator	119	62 to 78	68 to 84		
	Handheld jack hammer		56 to 72			
	Dump truck		54 to 70			
	Concrete saw		64 to 80			
	Skid steer		60 to 76			
	Power hand tools		59 to 75			
Structure	Handheld jack hammer	117	56 to 72	67 to 83		
	Concrete saw		64 to 80			
	Power hand tools		59 to 75			
	Welder		51 to 67			
	Concrete pump truck		60 to 76			
	Concrete agitator truck		58 to 74			
Internal Works	Power hand tools	109	59 to 75	59 to 75		
Common and External Works	Concrete agitator truck	117	58 to 74	66 to 83		
	Saw cutter		54 to 70			
	Dump truck		54 to 70			
	Concrete saw		64 to 80			
	Power hand tools		59 to 75			

Table 14 Receiver 4 - Summary of predicted construction noise levels – Residence located to the south of the site on Graham Avenue

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Criteria dBA L _{Aeq} 15 minutes	Summary of Result
Site Establishment Works	Mobile crane	113	60 to 76	63 to 79	<u>Standard Construction Hours</u> 39 + 10 = <u>49</u> <u>Highly Noise Affected Level</u> <u>Standard Construction Hours</u> <u>75</u>	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Mitigations of construction noise required to be undertaken including measures detailed in this report.
	Power hand tools		59 to 75			
	Semi Rigid Vehicle		55 to 71			
Ground Works and Demolition	Excavator	119	62 to 78	68 to 84		
	Handheld jack hammer		56 to 72			
	Dump truck		54 to 70			
	Concrete saw		64 to 80			
	Skid steer		60 to 76			
	Power hand tools		59 to 75			
Structure	Handheld jack hammer	117	56 to 72	67 to 83		
	Concrete saw		64 to 80			
	Power hand tools		59 to 75			
	Welder		51 to 67			
	Concrete pump truck		60 to 76			
	Concrete agitator truck		58 to 74			
Internal Works	Power hand tools	109	59 to 75	59 to 75		
Common and External Works	Concrete agitator truck	117	58 to 74	66 to 83		
	Saw cutter		54 to 70			
	Dump truck		54 to 70			
	Concrete saw		64 to 80			
	Power hand tools		59 to 75			

Table 15 Receiver 5 - Summary of predicted construction noise levels – Residence located to the north east on Darcy Road

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined Noise</u> Level at Receiver dBA L _{Aeq} 15 minutes	Criteria dBA L _{Aeq} 15 minutes	Summary of Result
Site Establishment Works	Mobile crane	113	60 to 76	63 to 79	<u>Standard Construction Hours</u> 39 + 10 = <u>49</u> <u>Highly Noise Affected Level</u> <u>Standard Construction Hours</u> <u>75</u>	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Mitigations of construction noise required to be undertaken including measures detailed in this report.
	Power hand tools		59 to 75			
	Semi Rigid Vehicle		55 to 71			
Ground Works and Demolition	Excavator	119	62 to 78	68 to 84		
	Handheld jack hammer		56 to 72			
	Dump truck		54 to 70			
	Concrete saw		64 to 80			
	Skid steer		60 to 76			
	Power hand tools		59 to 75			
Structure	Handheld jack hammer	117	56 to 72	67 to 83		
	Concrete saw		64 to 80			
	Power hand tools		59 to 75			
	Welder		51 to 67			
	Concrete pump truck		60 to 76			
	Concrete agitator truck		58 to 74			
Internal Works	Power hand tools	109	59 to 75	59 to 75		
Common and External Works	Concrete agitator truck	117	58 to 74	66 to 83		
	Saw cutter		54 to 70			
	Dump truck		54 to 70			
	Concrete saw		64 to 80			
	Power hand tools		59 to 75			

Table 16 Receiver 6 - Summary of predicted construction noise levels – Residence located to the east on Olive Street

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Criteria dBA L _{Aeq} 15 minutes	Summary of Result
Site Establishment Works	Mobile crane	113	57 to 72	60 to 76	<u>Standard Construction Hours</u> 38 + 10 = 48 <u>Highly Noise Affected Level</u> <u>Standard Construction Hours</u> 75	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Mitigations of construction noise required to be undertaken including measures detailed in this report.
	Power hand tools		56 to 71			
	Semi Rigid Vehicle		52 to 68			
Ground Works and Demolition	Excavator	119	59 to 74	65 to 81		
	Handheld jack hammer		53 to 69			
	Dump truck		51 to 67			
	Concrete saw		61 to 77			
	Skid steer		57 to 72			
	Power hand tools		56 to 71			
Structure	Handheld jack hammer	117	53 to 69	64 to 80		
	Concrete saw		61 to 77			
	Power hand tools		56 to 71			
	Welder		48 to 63			
	Concrete pump truck		57 to 72			
	Concrete agitator truck		55 to 70			
Internal Works	Power hand tools	109	56 to 71	56 to 71		
Common and External Works	Concrete agitator truck	117	55 to 70	64 to 79		
	Saw cutter		51 to 67			
	Dump truck		51 to 67			
	Concrete saw		61 to 77			
	Power hand tools		56 to 71			

Table 17 Receiver 7 - Summary of predicted construction noise levels – Residence located to the south east on Fyall Avenue

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined Noise</u> Level at Receiver dBA L _{Aeq} 15 minutes	Criteria dBA L _{Aeq} 15 minutes	Summary of Result
Site Establishment Works	Mobile crane	113	60 to 76	63 to 79	<u>Standard Construction Hours</u> 39 + 10 = 49 <u>Highly Noise Affected Level</u> <u>Standard Construction Hours</u> 75	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Mitigations of construction noise required to be undertaken including measures detailed in this report.
	Power hand tools		59 to 75			
	Semi Rigid Vehicle		55 to 71			
Ground Works and Demolition	Excavator	119	62 to 78	68 to 84		
	Handheld jack hammer		56 to 72			
	Dump truck		54 to 70			
	Concrete saw		64 to 80			
	Skid steer		60 to 76			
	Power hand tools		59 to 75			
Structure	Handheld jack hammer	117	56 to 72	67 to 83		
	Concrete saw		64 to 80			
	Power hand tools		59 to 75			
	Welder		51 to 67			
	Concrete pump truck		60 to 76			
	Concrete agitator truck		58 to 74			
Internal Works	Power hand tools	109	59 to 75	59 to 75		
Common and External Works	Concrete agitator truck	117	58 to 74	66 to 83		
	Saw cutter		54 to 70			
	Dump truck		54 to 70			
	Concrete saw		64 to 80			
	Power hand tools		59 to 75			

Table 18 Receiver 8 - Summary of predicted construction noise levels – Residence located to the east on Olive Street

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Criteria dBA L _{Aeq} 15 minutes	Summary of Result
Site Establishment Works	Mobile crane	113	60 to 76	63 to 79	<u>Standard Construction Hours</u> 39 + 10 = <u>49</u> <u>Highly Noise Affected Level</u> <u>Standard Construction Hours</u> <u>75</u>	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Mitigations of construction noise required to be undertaken including measures detailed in this report.
	Power hand tools		59 to 75			
	Semi Rigid Vehicle		55 to 71			
Ground Works and Demolition	Excavator	119	62 to 78	68 to 84		
	Handheld jack hammer		56 to 72			
	Dump truck		54 to 70			
	Concrete saw		64 to 80			
	Skid steer		60 to 76			
	Power hand tools		59 to 75			
Structure	Handheld jack hammer	117	56 to 72	67 to 83		
	Concrete saw		64 to 80			
	Power hand tools		59 to 75			
	Welder		51 to 67			
	Concrete pump truck		60 to 76			
	Concrete agitator truck		58 to 74			
Internal Works	Power hand tools	109	59 to 75	59 to 75		
Common and External Works	Concrete agitator truck	117	58 to 74	66 to 83		
	Saw cutter		54 to 70			
	Dump truck		54 to 70			
	Concrete saw		64 to 80			
	Power hand tools		59 to 75			

Table 19 Receiver 9 - Summary of predicted construction noise levels – Residence located to the west of the site on Pioneer Street

Phase	Activity	Aggregate Sound Power Level (dBA re 1pW)	Predicted <u>Individual</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Predicted <u>Combined</u> Noise Level at Receiver dBA L _{Aeq} 15 minutes	Criteria dBA L _{Aeq} 15 minutes	Summary of Result
Site Establishment Works	Mobile crane	113	57 to 72	60 to 76	<u>Standard Construction Hours</u> 38 + 10 = <u>48</u> <u>Highly Noise Affected Level</u> <u>Standard Construction Hours</u> <u>75</u>	Works indicatively predicted to have the potential to exceed the noise management level when working near a receiver. Mitigations of construction noise required to be undertaken including measures detailed in this report.
	Power hand tools		56 to 71			
	Semi Rigid Vehicle		52 to 68			
Ground Works and Demolition	Excavator	119	59 to 74	65 to 81		
	Handheld jack hammer		53 to 69			
	Dump truck		51 to 67			
	Concrete saw		61 to 77			
	Skid steer		57 to 72			
	Power hand tools		56 to 71			
Structure	Handheld jack hammer	117	53 to 69	64 to 80		
	Concrete saw		61 to 77			
	Power hand tools		56 to 71			
	Welder		48 to 63			
	Concrete pump truck		57 to 72			
	Concrete agitator truck		55 to 70			
Internal Works	Power hand tools	109	56 to 71	56 to 71		
Common and External Works	Concrete agitator truck	117	55 to 70	64 to 79		
	Saw cutter		51 to 67			
	Dump truck		51 to 67			
	Concrete saw		61 to 77			
	Power hand tools		56 to 71			

5.3 Construction Traffic Noise Assessment

It is proposed that the construction traffic would access the site via Darcy Road to the north of the site. All construction traffic will access the site and use the surrounding roadways in accordance with the site Construction Management plan.

5.4 Vibration Assessment

In order to maintain compliance with the human comfort vibration criteria discussed in Section 4.2, it is recommended that the indicative safe distances listed in table below should be maintained. These indicative safe distances should be validated prior to the start of construction works by undertaking measurements of vibration levels generated by construction and demolition equipment to be used on site.

Since the criteria for scientific or medical equipment (should any of these exist close to the site) can be more stringent than those required for human comfort, vibration validating measurements should be conducted at each site to determine the vibration level and potential impact onto this sensitive equipment.

Additionally, any vibration levels should be assessed in accordance with the criteria discussed in Section 4.2.

Table 20 Recommended indicative safe working distances for vibration intensive plant

Plant	Rating / Description	Safe Working Distances (m)	
		Cosmetic Damage (BS 7385: Part 2 DIN 4150: Part 3)	Human Comfort (AVTG)
Vibratory roller	< 50 kN (Typically 1 – 2 tonnes)	5	15 – 20
	< 100 kN (Typically 2 – 4 tonnes)	6	20
	< 200 kN (Typically 4 – 6 tonnes)	12	40
	< 300 kN (Typically 7 – 13 tonnes)	15	100
	> 300 kN (Typically more than 13 tonnes)	20	100
Small hydraulic hammer	300 kg, typically 5 – 12 tonnes excavator	2	7
Medium hydraulic hammer	900 kg, typically 12 – 18 tonnes excavator	7	23
Large hydraulic hammer	1600 kg, typically 18 – 34 tonnes excavator	22	73
Vibratory pile driver	Sheet piles	2 – 20	20
Jackhammer	Hand held	1	Avoid contact with structure and steel reinforcements

Based on the required construction activities to be undertaken as part of the project as well as the proximity of the surrounding receivers to the site the resulting construction vibration is unlikely to negatively impact on any of the surrounding receivers.

6 NOISE AND VIBRATION MANAGEMENT PLAN

6.1 Acoustic Management Procedures

Table 21 below summarises the management procedures recommended for airborne noise and vibration impact. These procedures are also further discussed in the report. Hence, where applicable, links to further references are provided in Table 21.

Table 21 Summary of mitigation procedures

Procedure	Abbreviation	Description	Further Reference
General Management Measures	GMM	Introduce best-practice general mitigation measures in the workplace which are aimed at reducing the acoustic impact onto the nearest affected receivers.	Refer to Section 5 For noise impact, also refer to Section 6.2.1 For vibration impact, also refer to Section 6.3.1
Project Notification	PN	Issue project updates to stakeholders, discussing overviews of current and upcoming works. Advanced warning of potential disruptions can be included. Content and length to be determined on a project-by-project basis.	Refer to Section 6.5.4 and 6.5.5
Verification Monitoring	V	Monitoring to comprise attended or unattended acoustic surveys. The purpose of the monitoring is to confirm measured levels are consistent with the predictions in the acoustic assessment, and to verify that the mitigation procedures are appropriate for the affected receivers. If the measured levels are higher than those predicted, then the measures will need to be reviewed and the management plan will need to be amended.	For noise impact, refer to Section 6.2.2. For vibration impact, refer to Section 6.3.2
Complaints Management System	CMS	Implement a management system which includes procedures for receiving and addressing complaints from affected stakeholders	Refer to Section 0
Specific Notification	SN	Individual letters or phone calls to notify stakeholders that noise levels are likely to exceed noise objectives. Alternatively, contractor could visit stakeholders individually in order to brief them in regards to the noise impact and the mitigation measures that will be implemented.	Refer to Section 6.5.4 and 6.5.5
Respite Offer	RO	Offer provided to stakeholders subjected to an ongoing impact.	-
Alternative Construction Methodology	AC	Contractor to consider alternative construction options that achieve compliance with relevant criteria. Alternative option to be determined on a case-by-case basis.	-

The application of these procedures is in relation to the exceedances over the relevant criteria. For airborne noise, the criteria are based on NMLs. The allocation of these procedures is discussed in Section 6.1.1

For vibration, the criteria either correspond to human comfort, building damage or scientific and medical equipment. The application of these procedures is discussed in Section 6.1.2.

6.1.1 Allocation of Noise Management Procedures

For residences, the management procedures have been allocated based on noise level exceedances at the affected properties, which occur over the designated NMLs (refer to section 4.1). The allocation of these procedures is summarised in Table 22 below.

Table 22 Allocation of noise management procedures – residential receivers

Construction Hours	Exceedance over NML (dB)	Management Procedures (see definition above)
Standard Hours	0 - 3	GMM
Mon – Fri: 8:00 am to 7:00 pm	4 - 10	GMM, PN, V ¹ , CMS, AC
Sat: 8:00 am – 5:00 pm	> 10	GMM, PN, V, CMS, SN, AC
Outside Standard Hours	0 - 10	GMM, AC
Mon – Fri: 7:00 am to 8:00 am	11 - 20	GMM, PN, V ¹ , CMS, AC
Sat: 7:00 am to 8:00 am	> 20	GMM, PN, V, CMS, SN, RO, AC
<i>Notes</i> 1. Verification monitoring to be undertaken upon complaints received from affected receivers		

Please note the following regarding the allocation of these procedures:

- The exceedances have been estimated as part of the acoustic assessment, and these are summarised in Section 5.1.
- The allocation of procedures is based on the assumptions used for noise level predictions (refer to Section 5.1). Consequently, these allocations can be further refined once additional details of the construction program become available.

For non-residential receivers (such as commercial), management measures are provided in Section 6.2.3.

6.1.2 Allocation of Vibration Management Procedures

Table 23 below summarises the vibration management procedures to be adopted based on exceedance scenarios (i.e., whether the exceedance occurs over human comfort criteria, building damage criteria, or criteria for scientific and medical equipment). Please note these management procedures apply for any type of affected receiver (i.e., for residences as well as non-residential receivers).

Table 23 Allocation of vibration management procedures

Construction Hours	Exceedance Scenario	Management Procedures
Standard Hours	Over human comfort criteria (refer to Section 4.2)	GMM, PN, V, RO
Mon – Fri: 8:00 am to 7:00 pm		
Sat: 8:00 am – 5:00 pm	Over building damage criteria (refer to Section 4.2)	GMM, V, AC
Outside Standard Hours	Over human comfort criteria (refer to Section 4.2)	GMM, SN, V, RO, CMS
Mon – Fri: 7:00 am to 8:00 am		
Sat: 7:00 am to 8:00 am	Over building damage criteria (refer to Section 4.2)	GMM, V, AC

6.2 Site Specific Noise Mitigation Measures – High Noise Affected Appliances

Predicted noise levels outlined in section 5.1 indicate exceedances above the Noise Management Levels (NMLs) as well as the Highly Noise Affected Level (HNAL) when in proximity to a boundary. To militate against any exceedances, the site will need to introduce periods of respite for activities which are creating noise levels above the HNAL only (i.e. greater than 75dBA). See below.

Table 24 Recommended Respite Periods

Monday to Friday	Saturday
7:00am to 8:00am – No noisy works (<u>Respite Period</u>)	8:00am to 9:00am – No noisy works (<u>Respite Period</u>)
8:00am to 11:30am – Works	9:00am to 12:00pm – Works
11:30am to 12:30pm – No noisy works (<u>Respite Period</u>)	12:00pm to 1:00pm – No noisy works (<u>Respite Period</u>)
12:30pm to 3:30pm – Works	
3:30pm to 4:30pm – No noisy works (<u>Respite Period</u>)	
4:30pm to 6:00pm – Works	

6.2.1 General Comments

The contractor will, where reasonable and feasible, apply best practice noise mitigation measures. These measures shall include the following:

- Maximising the offset distance between plant items and nearby noise sensitive receivers.
- Preventing noisy plant working simultaneously and adjacent to sensitive receivers.
- Minimising consecutive works in the same site area.
- Orienting equipment away from noise sensitive areas.
- Carrying out loading and unloading away from noise sensitive areas.

In order to minimise noise impacts during the works, the contractor will take all reasonable and feasible measures to mitigate noise effects.

The contractor will also take reasonable steps to control noise from all plant and equipment. Examples of appropriate noise control include efficient silencers and low noise mufflers.

The contractor should apply all feasible and reasonable work practices to meet the NMLs and inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels, duration of noise generating construction works, and the contact details for the proposal.

6.2.2 Noise Monitoring

Noise monitoring, if required, will be performed by an acoustical consultant directly engaged by the contractor.

Noise monitoring is recommended to be undertaken by attended noise measurements at the start of any new phase of works (i.e. demolition, excavation or remediation works etc.). The statistical parameters to be measured should include the following noise descriptors: LAmin, LA90, LA10, LA1, LAmax and LAeq. Unattended noise measurements should be conducted over consecutive 15 minute periods.

This monitoring should also be complemented by undertaking attended noise measurements in order to:

- Differentiate between construction noise sources and other extraneous noise events (such as road traffic and aircraft noise)
- Note and identify any excessive noise emitting machinery or operation.

Noise monitoring and measurements on the site will include the following:

- Noise monitoring during the required demolition to be completed on the site.
- Periodic attended noise measurements during the bulk earthworks to be completed on the site, typically monthly.

In addition to the above detailed measurements, should any complaints be received which have not been determined previously, it should be confirmed by conducting additional attended noise measurements.

The survey methodology and any equipment should comply with the requirements discussed in Standard AS 1055.1-1997.

6.2.3 Noise Mitigation Measures for Non-Residential Receivers

Where exceedances have been identified in Section 0, the following mitigation measures are recommended:

- Undertake general mitigation measures as discussed in Section 6
- Issue project updates to tenants in affected premises. The updates can include overview of current and upcoming works, as well as advanced warning of potential disruptions. These updates can also be issued through an email distribution list or via social media.
- Signage to be posted in order to provide stakeholders information regarding project details, emergency contacts and enquiry contact information.

6.2.4 Alternate Equipment or Process

Exceedance of the site's NMLs should result in an investigation as to whether alternate equipment could be used, or a difference process could be undertaken.

In some cases, the investigation may conclude that no possible other equipment can be used, however, a different process could be undertaken.

6.2.5 Acoustic Enclosures/Screening

Typically, on a construction site there are three different types of plant that will be used: mobile plant (i.e., excavators, skid steers, etc.), semi mobile plant (i.e., hand tools generally) or static plant i.e. (diesel generators).

For plant items which are static it is recommended that, in the event exceedances are being measured due to operation of the plant item, an acoustic enclosure/screen is constructed to reduce impacts. These systems can be constructed from Fibre Cement (FC) sheeting or, if airflow is required, acoustic attenuators or louvres.

For semi mobile plant, relocation of plant should be investigated to either be operated in an enclosed space or at locations away from a receiver.

With mobile plant it is generally not possible to treat these sources. However, investigations into the machine itself may result in a reduction of noise (i.e., mufflers/attenuators etc).

6.2.6 Required Piling

Works on the site are not required to include piling of any type.

6.3 Vibration Mitigation Measures

6.3.1 General Comments

As part of the CNVMP, the following vibration mitigation measures should be implemented:

- Any vibration generating plant and equipment is to be in areas within the site in order to lower the vibration impacts.
- Investigate the feasibility of rescheduling the hours of operation of major vibration generating plant and equipment.
- Use lower vibration generating items of construction plant and equipment; that is, smaller capacity plant.
- Minimise conducting vibration generating works consecutively in the same area (if applicable).
- Schedule a minimum respite period of at least 30 minutes before activities commence which are to be undertaken for a continuous 4-hour period.
- Use only dampened rock breakers and/or “city” rock breakers to minimise the impacts associated with rock breaking works.
- Conduct attended measurements of vibration generating plant at commencement of works in order to validate the indicative safe working distances advised in Table 25 and, consequently, to establish safe working distances suitable to the project. Measurements should be conducted at the nearest affected property boundary. These safe working distances should be defined by considering the vibration criteria discussed in Section 1.2 (i.e., criteria for structural damage, human comfort and impact to scientific or medical equipment).

6.3.2 Vibration Monitoring

Vibration monitoring will be undertaken at the nearest most affected structures and include the following:

1. Attended vibration surveys resulting from high vibration generating activities which are within the recommended safe working distances detailed in Table 20 above. Vibration assessments should include attended vibration measurements of proposed activities to be undertaken on the site.

The vibration monitoring equipment would be operated and analysed by the acoustical consultant.

Reports of the measured vibration levels and their likely impacts would be prepared by the acoustical consultant and issued to the contractor.

6.4 Noise and Vibration Monitoring

As part of the management of noise from the proposed construction activities to be undertaken on the site the following noise and vibration monitoring is to be undertaken:

1. Noise Monitoring– Attended noise monitoring of excavation and construction activities is to be undertaken during the following periods:
 - a. Commencement of any rock breaking or sawing on the site.
 - b. In response to any ongoing complaints received from neighbours.
2. Vibration – Based on the proximity of the surrounding receivers to the works magnitudes of vibration resulting from construction activities required to be undertaken on the site are not expected to approach vibration limits detailed in Section 4.2 of this report, therefore permanent continuous vibration monitoring is not recommended.

Attended vibration monitoring is to be undertaken at the following periods:

- a. Commencement of any high vibration generating activities including hydral hammering, rock breaking or vibration rolling on the site.
- b. receiver location in the event complaints resulting from construction activities resulting from the perception of vibration are experienced by the occupants of buildings within the vicinity of the site.

6.5 SINSW Complaints management process as outlined in the Community Communication Report (CCR)

6.5.1 Enquiries and complaints management

SINSW manages enquiries, and complaints in a timely and responsive manner and detailed in the projects Community Consolation Summary report.

Prior to project delivery, a complaint could be related to lack of community consultation, design of the project, lack of project progress, etc.

During project delivery, a complaint is defined as in regard to construction impacts – such as – safety, dust, noise, traffic, congestion, loss of parking, contamination, loss of amenity, hours of work, property damage, property access, service disruption, conduct or behaviour of construction workers, other environmental impacts, unplanned or uncommunicated disruption to the school.

As per our planning approval conditions, a complaints register is updated monthly and is publicly available on the project's website page on the SINSW website. The complaints register will record the number of complaints received, the nature of the complaints and how the complaint was resolved.

6.5.2 Complaints management process

All complaints will be conducted in accordance with the projects Community Communication Strategy. Any face to face complaints will be directed to the hotline as detailed in the Community Communication Strategy.

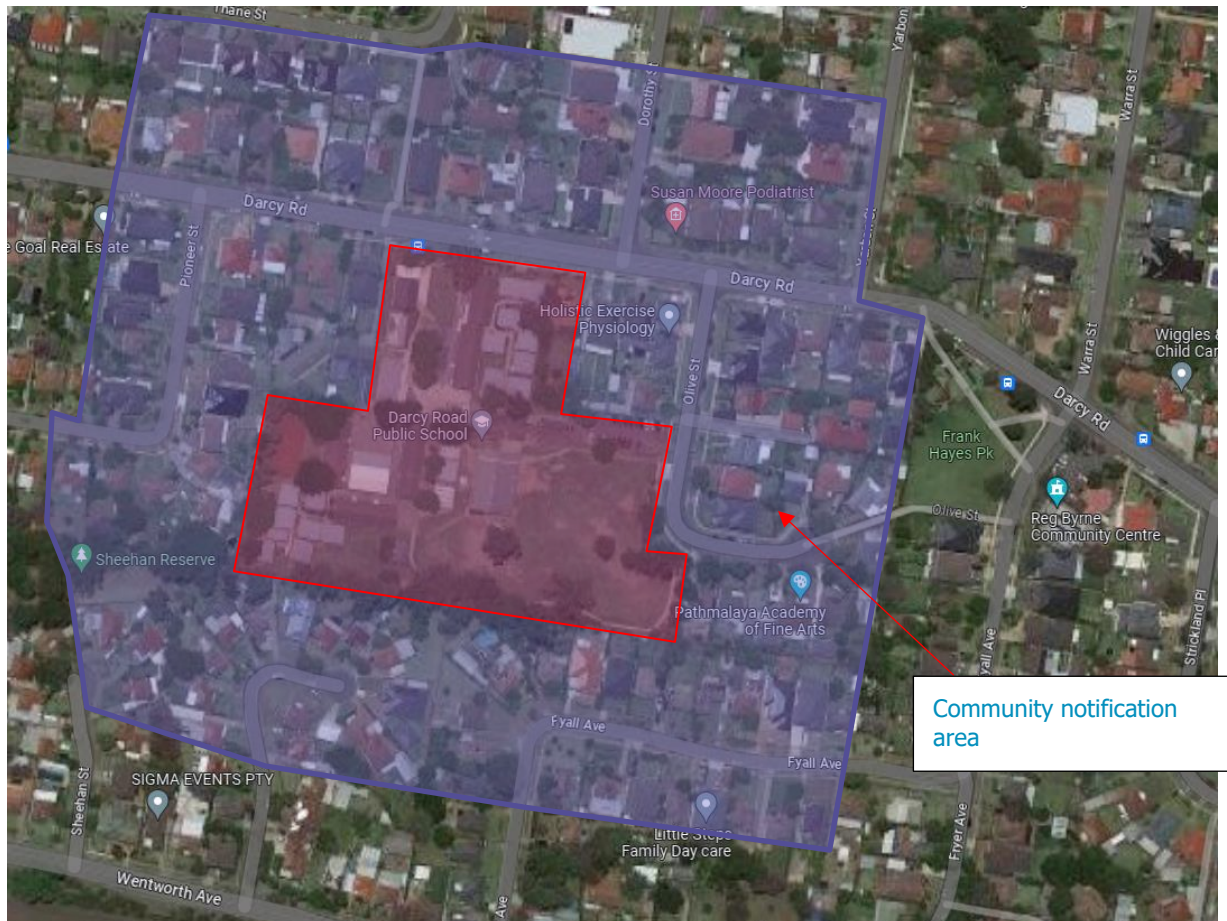
6.5.3 Complaints in common community languages

Complaints can be made in common community languages using the Translating and Interpreting Service (TIS), managed by the Department of Home Affairs. Community members can be connected to an interpreter by calling TIS on 131 450. TIS contact details are included on all project communications. Once TIS has the interpreter on the line, the interpreter and community member are connected to School Infrastructure and phone interpretation can begin. School Infrastructure NSW receives the complaint via the translator and begins the complaints management process as outlined above.

6.5.4 Community Notifications

Prior to the works onsite being undertaken, it is recommended that community consultation with the neighbouring affected parties be undertaken. These include the locations detailed in the figure below.

Figure 4 Required Community Notification Area



Communication notification, should not be limited to the beginning of the onsite works but throughout, providing the community with constant updates on the progress and upcoming works. In our experience these could include:

- Project website.
- Email notifications; and
- Letterbox drops.

6.5.5 Community Engagement

It is proposed that throughout the duration of the project, continued meetings with both the school principals will be undertaken on a regular basis to monitor and mitigate any impacts of construction noise and vibration on the school community.

6.6 Complaints Management System

Should complaints arise they must be dealt with in a responsible and uniform manner, therefore, a management system to deal with complaints is detailed above.

6.7 Contingency Plans

Contingency plans are required to address noise or vibration problems if excessive levels are measured at surrounding sensitive receivers and/or if justified complaints occur. Such plans include:

- Stop the onsite works.
- Identify the source of the main equipment within specific areas of the site which is producing the most construction noise and vibration at the sensitive receivers; and
- Review the identified equipment and determine if an alternate piece of equipment can be used or the process can be altered.
- In the event an alternate piece of equipment or process can be used, works can re-commence.
- In the event an alternate piece of equipment or process cannot be determined implement a construction assessment to be performed by a suitably qualified acoustic consultant.

The Superintendent shall have access to view the Contractor's noise measurement records on request. The Superintendent may undertake noise monitoring if and when required.

6.8 General Mitigation Measures (Australia Standard 2436-2010)

As well as the above project specific noise mitigation controls, AS 2436-2010 "*Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites*" sets out numerous practical recommendations to assist in mitigating construction noise emissions. Examples of strategies that could be implemented on the subject project are listed below, including the typical noise reduction achieved, where applicable.

6.8.1 Adoption of Universal Work Practices

- Regular reinforcement (such as at toolbox talks) of the need to minimise noise and vibration.
- Regular identification of noisy activities and adoption of improvement techniques.
- Avoiding the use of portable radios, public address systems or other methods of site communication that may unnecessarily impact upon nearby sensitive receivers.
- Where possible, avoiding the use of equipment that generates impulsive noise.
- Minimising the need for vehicle reversing for example (particularly at night), by arranging for one-way site traffic routes.
- Use of broadband audible alarms on vehicles and elevating work platforms used on site.
- Minimising the movement of materials and plant and unnecessary metal-on-metal contact.
- Minimising truck movements.

6.8.2 Plant and Equipment

- Choosing quieter plant and equipment based on the optimal power and size to most efficiently perform the required tasks.
- Selecting plant and equipment with low vibration generation characteristics.
- Operating plant and equipment in the quietest and most efficient manner.

6.8.3 On Site Noise Mitigation

- Maximising the distance between noise activities and noise sensitive land uses.
- Installing purpose-built noise barriers, acoustic sheds and enclosures.

6.8.4 Work Scheduling

- Providing respite periods which could include restricting very noisy activities to time periods that least affect the nearby noise sensitive locations, restricting the number of nights that after-hours work is conducted near residences or by determining any specific requirements.
- Scheduling work to coincide with non-sensitive periods.
- Planning deliveries and access to the site to occur quietly and efficiently and organising parking only within designated areas located away from the sensitive receivers.
- Optimising the number of deliveries to the site by amalgamating loads where possible and scheduling arrivals within designated hours.
- Including contract conditions that include penalties for non-compliance with reasonable instructions by the principal to minimise noise or arrange suitable scheduling.

6.8.5 Source Noise Control Strategies

Some ways of controlling noise at the source are:

- Where reasonably practical, noisy plant or processes should be replaced by less noisy alternatives.
- Modify existing equipment: Engines and exhausts are typically the dominant noise sources on mobile plant such as cranes, graders, excavators, trucks, etc. In order to minimise noise emissions, residential grade mufflers should be fitted on all mobile plant utilised on site.
- Siting of equipment: locating noisy equipment behind structures that act as barriers, or at the greatest distance from the noise-sensitive area; or orienting the equipment so that noise emissions are directed away from any sensitive areas, to achieve the maximum attenuation of noise.
- Regular and effective maintenance.

6.8.6 Miscellaneous Comments

Deliveries should be undertaken, where possible, during standard construction hours.

Maximise hammer penetration (and reduce blows) by using sharp hammer tips. Keep stocks of sharp profiles at site and monitor the profiles in use.

It is advised that mobile plant and trucks operating on site for a significant portion of the project are to have reversing alarm noise emissions minimised. This is to be implemented subject to recognising the need to maintain occupational safety standards.

No public address system should be used on site (except for emergency purposes).

7 CONCLUSION

This report details the Construction Noise and Vibration Management Sub Plan for the construction of the proposed alterations and additions to Darcy Road Public School located at 98A Darcy Road, Wentworthville, NSW.

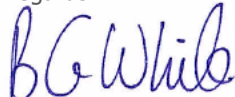
An assessment of noise and vibration impacts from the required processes to be undertaken during the construction period of the project (including ground works and construction) has been undertaken and suitable treatments, management controls, perioding measurements and community engagement has been detailed in this report.

Providing the recommendations in this report are included in the construction of the site, compliance with the relevant EPA's *Interim Construction Noise Guideline* and the projects *Consent* will be achieved.

Based on the required construction activities to be undertaken on the site and the distance separation to the neighbouring receivers, compliance with the relevant vibration criteria is expected to be achieved without additional mitigations. Conformation of compliance with the relevant criteria will be undertaken using attended vibration monitoring.

For any additional information please do not hesitate to contact the person below.

Regards

A handwritten signature in blue ink that reads "BG White".

Ben White
Director

Pulse White Noise Acoustics



APPENDIX A: ACOUSTIC GLOSSARY

The following is a brief description of the acoustic terminology used in this report:

Ambient Sound	The totally encompassing sound in a given situation at a given time, usually composed of sound from all sources near and far.																				
Audible Range	The limits of frequency which are audible or heard as sound. The normal ear in young adults detects sound having frequencies in the region 20 Hz to 20 kHz, although it is possible for some people to detect frequencies outside these limits.																				
Character, acoustic	The total of the qualities making up the individuality of the noise. The pitch or shape of a sound's frequency content (spectrum) dictate a sound's character.																				
Decibel [dB]	The level of noise is measured objectively using a Sound Level Meter. The following are examples of the decibel readings of every day sounds; <table> <tr> <td>0dB</td><td>the faintest sound we can hear</td></tr> <tr> <td>30dB</td><td>a quiet library or in a quiet location in the country</td></tr> <tr> <td>45dB</td><td>typical office space. Ambience in the city at night</td></tr> <tr> <td>60dB</td><td>Martin Place at lunch time</td></tr> <tr> <td>70dB</td><td>the sound of a car passing on the street</td></tr> <tr> <td>80dB</td><td>loud music played at home</td></tr> <tr> <td>90dB</td><td>the sound of a truck passing on the street</td></tr> <tr> <td>100dB</td><td>the sound of a rock band</td></tr> <tr> <td>115dB</td><td>limit of sound permitted in industry</td></tr> <tr> <td>120dB</td><td>deafening</td></tr> </table>	0dB	the faintest sound we can hear	30dB	a quiet library or in a quiet location in the country	45dB	typical office space. Ambience in the city at night	60dB	Martin Place at lunch time	70dB	the sound of a car passing on the street	80dB	loud music played at home	90dB	the sound of a truck passing on the street	100dB	the sound of a rock band	115dB	limit of sound permitted in industry	120dB	deafening
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120dB	deafening																				
dB(A)	<i>A-weighted decibels</i> The ear is not as effective in hearing low frequency sounds as it is hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter. The sound pressure level in dB(A) gives a close indication of the subjective loudness of the noise.																				
Frequency	Frequency is synonymous to <i>pitch</i> . Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.																				
Loudness	A rise of 10 dB in sound level corresponds approximately to a doubling of subjective loudness. That is, a sound of 85 dB is twice as loud as a sound of 75 dB which is twice as loud as a sound of 65 dB and so on																				
LMax	The maximum sound pressure level measured over a given period.																				
LMin	The minimum sound pressure level measured over a given period.																				
L1	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.																				
L10	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.																				
L90	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L ₉₀ noise level expressed in units of dB(A).																				
Leq	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.																				
dB (A)	'A' Weighted overall sound pressure level																				
Sound Pressure Level, LP dB	A measurement obtained directly using a microphone and sound level meter. Sound pressure level varies with distance from a source and with changes to the measuring environment. Sound pressure level equals 20 times the logarithm to the base 10 of the ratio of the rms sound pressure to the reference sound pressure of 20 micro Pascals.																				
Sound Power Level, Lw dB	Sound power level is a measure of the sound energy emitted by a source, does not change with distance, and cannot be directly measured. Sound power level of a machine may vary depending on the actual operating load and is calculated from sound pressure level measurements with appropriate corrections for distance and/or environmental conditions. Sound power levels is equal to 10 times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power of 1 picoWatt																				

APPENDIX B – BEN WHITE CV AND AAS MEMBERSHIP

Curriculum Vitae – Benjamin White



Employment Experience:

Director – Pule White Noise Acoustics
Present

November 2020 –

Director - White Noise Acoustics:

March 2019 – Present

Director/Engineer - Acoustic Logic Consultancy:
July 2018

March 2001 –

Experience:

Ben White the Director of White Noise has over 17 years of experience in acoustic.

Ben has significant experience in providing acoustic services and expert advice in the following areas:

- Residential acoustic reports including aircraft noise (AS2021) assessments, traffic noise, train noise and vibration assessments.
- Noise emission assessments for various projects including assessments with planning requirements using EPA, Department of Planning, Council DCP's and similar regulatory requirements.
- Planning approvals including Development Applications for multi dwelling residential developments, commercial developments, hotels and boarding houses, places of entertainment, carparks, mixed use developments, shopping centres and the like.
- Expert court witness including Land and Environment Court and other expert witness work.
- Project planning and specifications for types of projects including residential, commercial, retail, hotel accommodation, warehouses and industrial developments and mixed-use projects.
- Project delivery for all types of projects including, design advice and project delivery requirements at all stages of projects during design and construction.
- Certification works including on site testing for the provision of certification of all types of projects including items required to comply with Part F5 of the BCA as well as project specific acoustic requirements.
- Mechanical design and advice for the treatments of mechanical services with project requirements.
- External façade design and specification.
- Specialised acoustic design advice including areas of projects.
- Issues with existing building include site surveys and audits as well as advice regarding rectification if required.

AUSTRALIAN ACOUSTICAL SOCIETY



This is to certify that

BENJAMIN WHITE

was admitted to the grade of

MEMBER

of the Australian Acoustical Society

on 27th October 2020

and is entitled to use the letters

M.A.A.S.

issued on 26th November 2020

S. Moore

President

[Signature]

General Secretary



This certificate remains the property of the Australian Acoustical Society

Darcy Road Public School

Project update | 24 January 2024

The upgrade of Darcy Road Public School will provide new permanent classrooms and core facilities to support the growing population in Western Sydney.

The project is a State Significant Development (SSD-49073460) and the Department of Planning, Housing and Infrastructure (DPHI) is currently assessing the application for the project.

Feedback on managing construction impacts

DPHI has issued draft conditions of consent for the project which require a Construction Noise and Vibration Management Sub-Plan (CNVMSP) to be prepared by a suitably qualified and experienced noise expert. The CNVMSP needs to include strategies that have been developed with the community for managing high noise generating works.

There are noise mitigation strategies that are already planned as part of the construction works, such as:

- noise monitoring, to ensure compliance with the noise and vibration management criteria outlined in the SSD application consent
- compliance with the 'Construction Hours' included in the SSD application consent conditions to minimise noise and vibration impacts of the development
- acoustic shielding where practical, to minimise noise from the site
- organising and scheduling works to limit the noisiest machines operating simultaneously
- maximising the distance between plant items and nearby noise sensitive receivers.

Under the conditions of approval, all work, including building/demolition and excavation work, and activities in the vicinity of the site generating noise, must only be carried out between 7 am and 6 pm, Mondays to Fridays inclusive and between 8 am and 1 pm, Saturdays. No work may be carried out on Sundays or public holidays.

Provided noise levels do not exceed the existing background noise level plus 5 decibels, works may also be undertaken between 6 pm and 7 pm, Mondays to Fridays and between 1 pm and 4 pm, Saturdays.

If you would like to provide any feedback on these measures or contribute any recommendations, that you feel would be beneficial and feasible for the project to implement, please contact School Infrastructure NSW by emailing schoolinfrastructure@det.nsw.edu.au or calling 1300 482 651 by Wednesday 31 January 2024.

To learn more about this project, visit the dedicated project webpage edu.nsw.link/DarcyRdPS.



For a Translation and Interpreting Service call 131 450 and ask them to call the Department of Education - School Infrastructure NSW on 1300 482 651.

Appendix 9 – Construction Waste Management Plan

CONSTRUCTION WASTE MANAGEMENT SUB-PLAN (CWMSP)

Darcy Road Public School



February 2024

Project Plan Information

Project Name: Darcy Road Public School

Project Address: 98A Darcy Road, Wentworthville NSW 2145

Revision Information

Rev Date	Revision Description	PM's Initials (Acceptance of Changes)
06/09/2023	Issued for SSDA Approval	FS
22/11/2023	SI Planning Review	FS
12/01/2024	New draft Condition requirements applied	FS
16/02/2024	RPI Review	FA

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APPENDICES:

APPENDIX A: CONSTRUCTION WASTE MANAGEMENT PLAN DRAWINGS

APPENDIX B: WASTE AND RECYCLING REGISTER

Figure 1.1 – Site Plan and the extent of SSDA physical works

The development application pathway for the project consists of an SSDA pursuant to section 4.36 of the Environmental Planning and Assessment Act 1979 (EP&A Act). The project involves the upgrade of Darcy Road Public School to accommodate 1,000 students and 25 new permanent staff. The proposal includes the following:

- Demolition of all buildings associated with the existing school, except for the existing hall which will be retained and refurbished;
- Construction of a new school comprising two new interconnected buildings up to four storeys,
- Construction of new open spaces and landscaping;
- Refurbishment of the existing hall including demolition of existing ancillary features to the eastern side of the building and extension of the hall into the existing covered outdoor learning area; and
- Extension of the existing car park.

The existing hard courts and oval within the broader Darcy Road Public School are outside of the extent of SSDA physical works.

During the construction period, the majority of the school will be relocated to a temporary area using demountable buildings in accordance with a separate planning approval outside of the SSDA boundary.

Upon completion of the SSDA works, Darcy Road Public School proposes to accommodate 1,000 students, assisting in alleviating current enrolment pressures within the Parramatta LGA. Darcy Road Public School will contain high quality collaborative learning spaces and associated facilities, creating future focused education through new and sustainable buildings.

The completed Darcy Road Public School will offer:

- facilities that are readily accessible and flexible to meet the demands of an evolving curriculum in line with future-focused learning principles
- flexible and well-connected teaching and learning spaces that enable a variety of teaching and learning practices
- spaces that are engaging and supportive for students and teachers
- technology-rich settings with an emphasis on mobility and flexibility
- a healthy and environmentally sustainable environment
- innovative, connected outdoor spaces that enable play and collaborative learning
- connected open space, creating a welcoming and accessible school with indoor and outdoor teaching and learning opportunities

New teaching spaces will incorporate principles of energy efficiency and ecologically sustainable development (ESD) including:

- passive design principles
- thermal performance and comfort
- natural lighting
- water and recycling management

1.2. OVERVIEW

This Construction Waste Management Plan (CWMP) has been prepared in accordance with the conditions of the Stage Significant Development Approval SSD-49073460 and Condition B16 of the development consent.

A Construction Waste Management Plan (CWMP) had been prepared by EcCell Environmental Management in January 2023, to support a State Significant Development Application (SSD 49073460) for the upgrade of Darcy Road Public School. This document has been prepared based on the information provided in the above-mentioned CWMP and has been developed to further details.

The development application pathway for the project consists of an SSDA pursuant to section 4.36 of the Environmental Planning and Assessment Act 1979 (EP&A Act).

This report addresses the relevant Secretary's Environmental Assessment Requirements (SEARs), State Significant Development Application (SSDA), and Parramatta City Council Conditions.

Table 1 - Secretary's Environmental Assessment Requirements (SEAR's) Requirement

SEARs Item	Report Reference
Identify, quantify, and classify the likely waste streams to be generated during construction.	Section 7 Project Phase
Provide the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.	Section 5 Waste Management Strategies
Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.	Section 5 Waste Management Strategies
Provide a hazardous materials survey of existing aboveground buildings that are proposed to be removed or altered.	SLR Consulting Australia Pty Ltd Hazardous Building Material Survey Report October 2022

Table 2 - State Significant Development Application (SSD - 49073460)

SSDA	Report Reference
B16. The Construction Waste Management Sub-Plan (CWMSP) must address, but not be limited to, the procedures for the management of waste including the following: (a) the recording of quantities, classification (for materials to be removed) and validation (for materials to remain) of each type of waste generated during construction and proposed use for materials to remain; (b) information regarding the recycling and disposal locations.	This Document Construction Waste Management SUB-Plan
B28. Prior to the commencement of the removal of any waste material from the site, the Applicant must notify the TfNSW Traffic Management Centre of the truck route(s) to be followed by trucks transporting waste material from the site."	
C29. All waste generated during construction must be secured and maintained within designated waste storage areas at all times and must not leave the site onto neighbouring public or private properties.	Appendix A
C30. All waste generated during construction must be assess, classified and managed in accordance with the Waste Classification Guidelines Part 1: Classifying Waste (EPA, 2014).	Section 7 Project Phase

C31. The Applicant must ensure that concrete waste and rinse water are not disposed of on the site and are prevented from entering any natural or artificial watercourse.	CEMP
C32. The Applicant must record the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations for the duration of construction.	Section 7 Project Phase
C33. The Applicant must ensure that the removal of hazardous materials, particularly the method of containment and control of emission of fibres to the air, and disposal at an approved waste disposal facility is in accordance with the requirements of the relevant legislation, codes, standards and guidelines	Section 5 Waste Management Strategies Management of Hazardous Waste
AN11. The Applicant must consult with SafeWork NSW concerning the handling of any asbestos waste that may be encountered during construction. The requirements of the Protection of the Environment Operations (Waste) Regulation 2014 with particular reference to Part 7 – 'Transportation and management of asbestos waste' must also be complied with."	

Table 3 - Parramatta City Council DCP Control Plan 2011

COUNCIL CONDITIONS 8	Report Reference
8.2 (a) The type and volume of all waste materials and the appropriate destination for each type of waste identified.	Section 7 Project Phase
8.2 (b) non-recyclable waste and containers are to be regularly, collected and disposed of at a licensed disposal site. Frequency of collection should be identified.	Section 7 Project Phase
8.2 (c) No burning or burying of waste is permitted on the site	Section 5 Waste Management Strategies
8.2 (d) Any bulk garbage bins delivered by authorized waste contractors are to be placed and kept within the property boundary.	Section 5 Waste Management Strategies
8.3 All waste (including hazardous materials) must be stored appropriately on site by the head contractor and disposed of by a licensed waste contractor at a licensed facility which can receive such waste	Section 5 Waste Management Strategies Management of Hazardous Waste

2. Project Location

The project site is Darcy Road Public School (DRPS). It is located at: 98A Darcy Road in Wentworthville, NSW, within the Local Government Area (LGA) of the City of Parramatta. DRPS is bound by Darcy Road to the north, Olive Street to the east and residential housing to the south and west. The site is approximately 4 km northwest of Parramatta CBD and 23 km north west of Sydney CBD.



Figure 2.1 - Site Location

3. Purpose and objectives

3.1. PURPOSE

The purpose of the Construction Waste Management Sub Plan (CWMSP) is to address and satisfy conditions of SSD 49073460 highlighted in Table 2 of this report.

The Construction Waste Management Sub Plan (CWMSP) will outline the procedures for effectively managing waste, including the following aspects:

- a. Recording of quantities of each type of waste generated during construction.
 - a. Classification for materials to be removed and
 - b. Validation for materials to remain use.
- b. Providing information regarding recycling and disposal facilities;
- c. Ensuring that waste will be assess, classified, and managed in accordance with the legislative requirements and guidelines;
- d. Delineate the communication process with relevant authorities: Traffic NSW and SafeWork NSW.

3.2. OBJECTIVES

The Objectives of the CWMSP Include:

- a) Identify, quantify, and classify waste streams to be generated during construction.
- b) Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.
- c) To ensure storage and collection of waste is designed and managed having appropriate regard to space, location, amenity and ongoing management of waste management facilities.
- d) Describe measures to be implemented to manage, reuse, and recycle and safely dispose of the waste.
- e) To maximise reuse and recycling of construction materials and materials from development.
- f) To encourage building design techniques in general which minimise waste generation.
- g) To minimise the amount of waste being deposited to landfill with targets to reuse or recycle at least 90% of construction and demolition waste as per Green Star requirements.

4. Legislative Requirements and Guidelines

Relevant key legislation and guidelines applicable to the project include:

- Protection of the Environment Operations Act 1997
- Protection of the Environment (General) Operations Act 1998
- Waste Avoidance and Resource Recovery Act 2014
- Protection of the Environment Operations (Waste) Regulation 2014
- Waste Classification) Guidelines (EPA, 2014)
- NSW Department of Planning and Environment, Secretary's Environmental Assessment Requirements (SEARs)
- Environmental Planning and Assessment Act 1979 (EP&A Act)
- Parramatta City Council DCP Control Plan 2011, Appendixes A8.1 Waste Management
- DECCW's Waste Classification Guidelines (2008)
- Green Building Council of Australia (GBCA) Green Star 5 Star Rating

5. Waste Management Strategies

The waste management strategy for the project will operate over the design, procurement, and construction of the project as shown on the table below:

Table 4 - Breakdown of Tasks and Responsibilities

Management Strategies	Responsibilities
Design	

• Use of modular components in design • Use of prefabricated components in design • Design for materials to standard sizes • Design for operational waste minimization	• Architect & Engineer • Architect, Builder, Subcontractors. • Architect, Subcontractors • Architect & Builder
Procurement	
• Select recycled and reprocesses materials • Select components that can be reused after deconstruction	• Architect, Engineer, Builder & Subcontractors • Architect, Engineer & Builder
Pre-construction	
• Waste management plan to be reviewed & approved prior to construction. • Contract a Waste Contractor	• Builder • Waste Contractor
Construction on-site	
• Use the avoid, reuse, reduce, recycle principles • Minimization of recurring packaging materials • Returning packaging to the supplier • Separation of recycling of materials off site • Audit & monitor the correct usage of bins • Audit and monitor the Waste Contractor	• Builder & Waste Contractor • Sub-contractors • Builder & Sub-contractor • Waste Contractor • Builder & Waste Contractor • Builder

5.1. ON SITE WASTE MANAGEMENT AND STORAGE REQUIREMENTS

There will be a designated waste storage area for the disposal and storage of construction waste prior to collection. This area will be located conveniently for the construction work team to use the bins as well as for waste contractors to collect. An indicative location has been provided in Appendix A.

Other requirements include:

- Construction waste storage is contained wholly within the site.
- The routes for movement of waste between work site and waste storage area are to be kept obstruction-free.
- The routes for movement of bins and waste between storage and collection points are marked in the site drawing and will be kept obstruction-free (if waste is moved between the waste storage area(s).
- The waste bin collection point provided will be accessible for waste collection vehicles. There are no obstructions to turning or reversing, pulling up vehicles and lifting bins.
- Access for waste collection vehicles will not be compromised by construction-related activities vehicles or other consequences of construction staging.
- All waste not being reused on site will be removed during, or at the completion of, the construction stage.
- No waste will be left on site unless it is part of valid reuse on site, which is integral to and in place in the design.
- To manage noise levels, collection of waste from the construction site will only occur during hours approved for construction work, but ideally before or after school hours.
- All vehicles entering or leaving the site must have their loads covered.
- All vehicles, before leaving the site, to be cleaned of dirt, sand, and other materials, to avoid tracking these materials onto public roads.
- At the completion of the works, the work-site is left clear of waste and debris.

- Non-recyclable waste and containers are to be regularly, collected and disposed of at a licensed disposal site. Waste will be collected daily where applicable.
- No burning or burying of waste is permitted on the site.
- Any bulk garbage bins delivered by authorized waste contractors are to be placed and kept within the property boundary.
- All waste (including hazardous materials) must be stored appropriately on-site by the head contractor and disposed of by a licensed waste contractor at a licensed facility, which can receive such waste.

5.2. REUSE OF DEMOLITION, EXCAVATION AND CONSTRUCTION MATERIALS

Construction Materials and off-cuts can be reused on-site. An area within the materials lay-down area will be allocated for the storage of materials to be reused.

These items include;

- Plastic buckets
- Timber crates
- Timber off cuts
- Paint brushes and rollers (Wrapped in plastic to maintain moisture)
- Plasterboard offcuts
- Cardboard boxes
- Clean fill will be reused on-site after verification by soil testing and Waste Classification.

5.3. MANAGEMENT OF HAZARDOUS WASTE

In accordance with Hazardous Building Material Survey Report provided by SLR Consulting Australia Pty Ltd dated October 2022, asbestos affected materials have been identified in 14 of 16 permanent buildings. All identified hazardous materials will be removed in accordance with relevant standards, codes, and guidelines. The disposal of the Hazmat waste material will be by plastic lined bin/truck to an EPA approved and licensed landfill facility. All disposal dockets will be filled.

A detailed site investigations has been undertaken by ADE Consulting Group Pty Ltd and SLR Consulting Australia Pty Ltd of both building and in-ground contamination, with no in-ground asbestos finding within 8 borehole samples taken from site. Based on the undertaken investigations the likelihood of presence of hazardous material on site is very low therefore there is no requirement for having a remediation action plan in place. On an event of any contamination finding during the works, the Unexpected Finds Protocol shall be followed as per section 5.4 of this plan.

5.4. UNEXPECTED FIND PROTOCOL

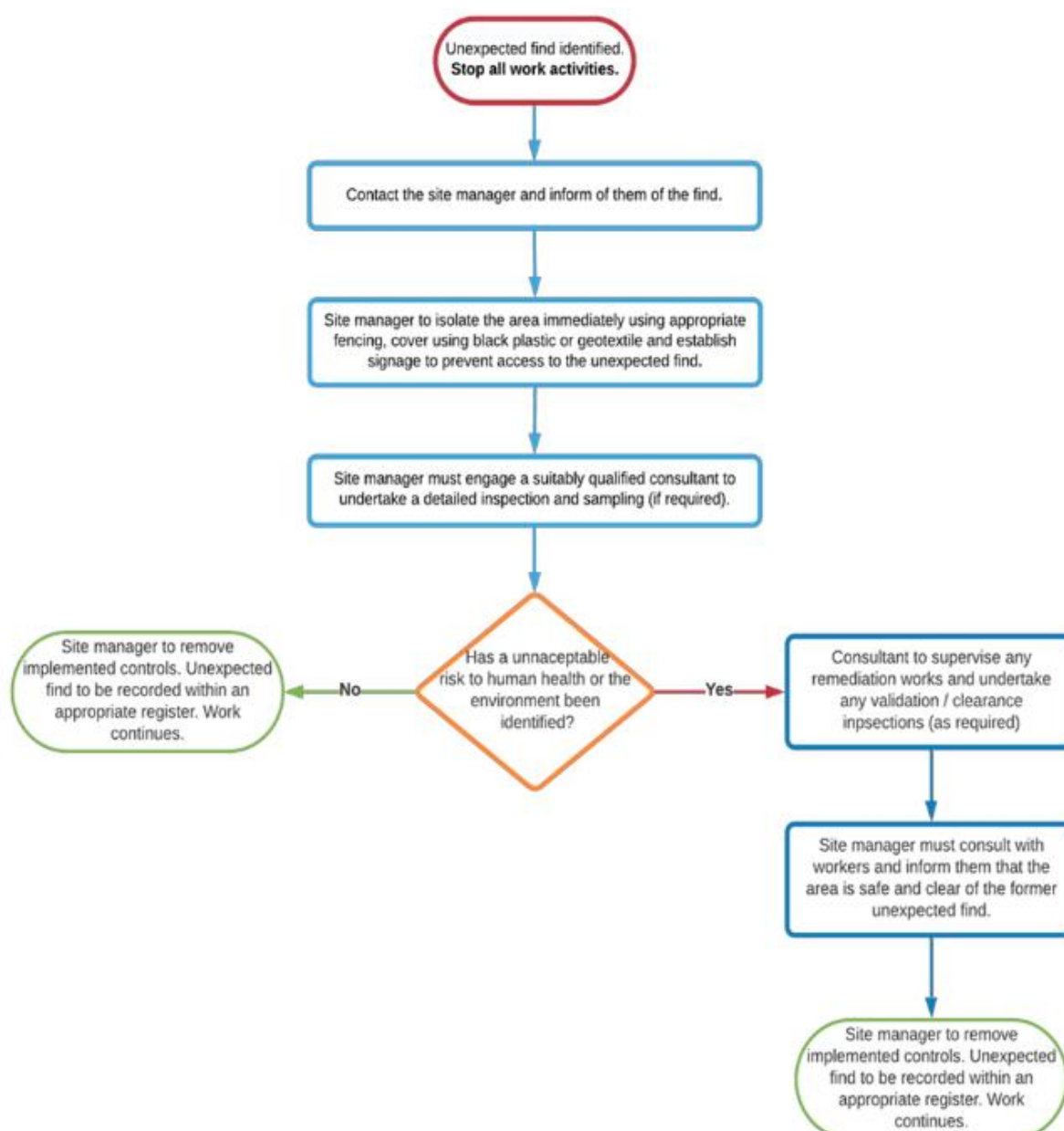
An unexpected find can be defined as:

- Any unanticipated archaeological discovery e.g., aboriginal relics, items of significance, etc.;
- Buried or surface asbestos containing materials (Bonded, Friable or other);
- Buried waste materials e.g., medical waste, contaminated waste, etc.;
- Septic or underground storage tanks;
- Animal burial pits; or
- Discoloured and odorous soils and groundwater/seepage.

Should an unexpected find of potential contamination be encountered during the works, the following procedure should be followed:

- Identified finding by worker;

- Cease work as soon as safe to do so and move clear of the finding;
- Do not tamper or attempt to remove the finding;
- Contact Construction Management immediately;
- Site Management to delineate an exclusion or quarantine zone around the area using fencing and or appropriate barriers and signage;
- Preliminary assessment of the find and need for immediate management controls;
- Further assessment and/or remediation works are required and how such works are to be undertaken in accordance with contaminated site regulations and guidelines;
- Any unexpected finds must be documented, and records of volumes and types of materials identified removed from the site must be kept on file;
- Receipt documentation from the licensed facility confirming volume received.



6. Construction Waste Management Principles

6.1. WASTE MANAGEMENT HIERACHY

The following principles of the waste management hierarchy will be used as a guiding principle in accordance with the Waste Avoidance & Resource Recovery Act 2001:

The waste hierarchy outlines a process for waste management which aims to implement effective use of resources and minimise waste in accordance with EPA's NSW Waste Avoidance and Resource Recovery Strategy 2014-21.

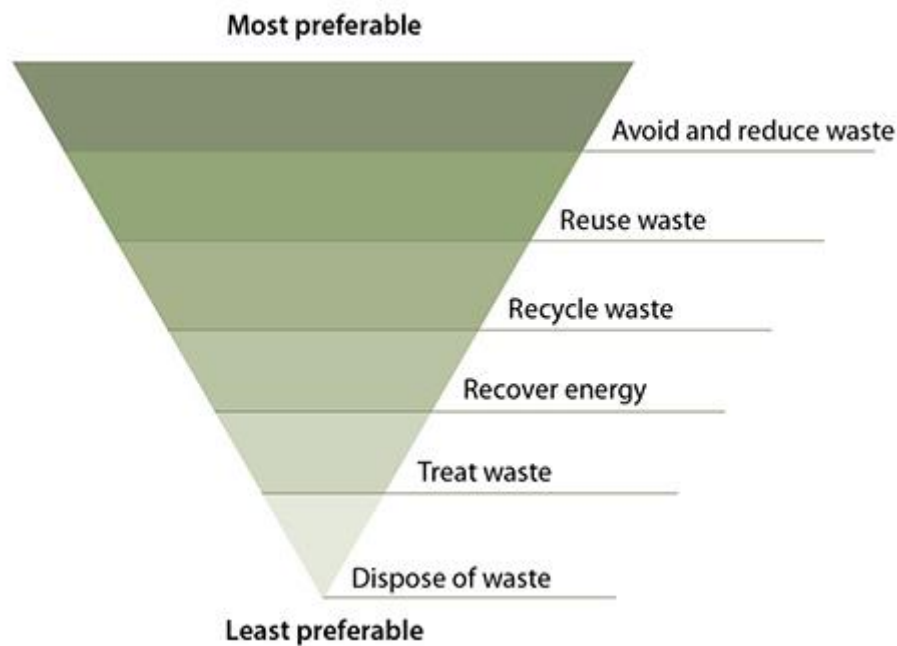


Figure 5-1- Waste Management Hierarchy

Avoid and Reduce

Minimise the production of waste materials in the construction process by:

- Assessing and taking into consideration the resultant waste from different design and construction options
- Purchasing materials that will result in less waste, which have minimal packaging, are pre-cut or fabricated.
- Not over ordering products and materials

Reuse

Ensure that wherever possible, materials are reused either on site or offsite.

- Identify all waste products that can be reused.
- Put systems in place to separate and store reusable items.
- Identify the potential applications for reuse both onsite and offsite and facilitate reuse.

Recycling

Identify all recyclable waste products to be produced on site.

- Provide systems for separating and stockpiling of recyclables.

- Provide clear signage to ensure recyclable materials are separated.
- Process the material for recycling either onsite or offsite.

Note: In some cases, it may be more economical to send the unsorted waste to specialised waste contractors who will separate and recycle materials at an offsite location.

Disposal

Waste products which cannot be reused or recycled will be removed and disposed of.

The following will need to be considered:

- Ensure the chosen waste disposal contractor complies with regulatory requirements.
- Implement regular collection of bins.

6.2. LIQUID WASTE

Liquid waste may be produced on site for environmental control measures such as:

- Site and vehicle cleaning
- Dust control waste.

The following measures will be taken to minimise the impact of liquid waste:

- Ensure water is used in moderation and no taps are left continuously running.
- Use any grey water produced on site for irrigation or for dust suppression.
- Only discharge clean water into storm water

6.3. STORMWATER POLLUTION PREVENTION

All actions will be undertaken to avoid pollution entering stormwater drains and for litter generation.

The following will be initiated:

- i. Prior to commencement of any works a Safe Work Method Statement will be completed and reviewed to determine potential for stormwater pollution and/or litter generation
- ii. The proponent (contractor) will need to develop a management strategy to manage the potential for these issues to be realised.
- iii. Site inspections will be conducted during the working day to monitor potential for stormwater pollution generation and where identified, works will cease until appropriate controls are implemented.
- iv. Waste water and storm water will be managed and disposed of in accordance with Water Authority requirements.

6.4. LITTER MANAGEMENT

- i. Daily site inspections will be conducted to identify litter, remedy the situation, and investigate the cause so as to reduce the potential for the issue to occur in the future.
- ii. Sufficient quantities of bins (and/or bin space), will be made available so as to avoid dumping of materials outside bins.
- iii. All waste/recycling bins will have covers to ensure that wastes cannot be blown out during windy conditions. This will also apply to relevant stocks of materials to be used in construction.
- iv. Personnel will be allocated the role of litter management in that they will periodically inspect the site and surrounds for litter and if identified collect and dispose of it.

6.5. RECORDS

Records will be kept of all wastes and recyclables generated and either used on site or transported off-site during the construction stages of the development.

It will be a condition of appointment that all waste/recycling contractors involved in the construction stages provide these records, and that they also contain details of the facilities that the materials are transported to.

During the construction phase, Waste and Recycling Register will be used and maintained to record the actual quantities of generated waste and recycling during construction work. At the end of the month, the quantities are to be reported in the KPI Monthly Report. A sample of Waste and Recycling Register has been provided in Appendix B.

These records will be made available to Council on request.

6.6. WASTE/RECYCLABLES STORAGE (ON-SITE)

All waste and recycling materials will be stored in bins provided by the appointed contractor(s). These bins will be appropriately coloured and signed to indicate what materials are to be deposited into them and located so as to maximise the recovery of reusable/recyclable materials.

As construction activities progress, the designated bins will be moved so as to maximise the collection of materials that will be diverted from landfill. This will also involve relocating signage advising as to correct waste management.

6.7. WASTE/RECYCLABLES TREATMENT (ON-SITE)

There will be no treatment of wastes or recyclables on-site except for possible removal of contaminants prior to forwarding to off-site recyclers.

6.8. WASTE AND RECYCLING SITES

The sites listed below are to be used during the removal process of the materials produced during the demolition of the structure.

Brick and Concrete

- Kimbriki Resource Recovery Center – Kimbriki
- Concrete Recyclers – Camellia

Timber and lining materials

- Cleanaway Waste
- Bingo Waste Services
- Blacktown Waste Facility
- Thors Hammer ACT – Recycled timber.
- Kelso Floorboard Recovery.

Copies of all waste recycling and landfill waste dockets will be made available to the Clients Representative if required. The removal of Waste Material will be carried out in accordance with this Construction Waste Management Plan.



7. PROJECT PHASE

7.1. DEMOLITION

Type of material on Site	Estimated Volume (m ³) or Weight (t) (Most Favorable → Least)			On-Site Treatment	Off-Site Treatment	
	Reuse	Recycling	Disposal	Proposed reuse and/or recycling collection methods	Disposal/ Transport Contractor	Waste Depot, Recycling Outlet or Landfill site
Brick, Brick-veneer, Concrete, Block, Wall Tiles & Cement		520 m ³		Co-mingle waste collection	TBA	TBA
Roof Tiles		110 m ³		Co-mingle waste collection	TBA	TBA
Sheet & Structural Metal		490 m ³		Stockpiled on-site and separated for recycling off-site	TBA	TBA
Electricals, Aircon & Fixtures and Fittings		90 m ³		Co-mingle waste collection	TBA	TBA
Plasterboard		280 m ³		Co-mingle waste collection	TBA	TBA
Glass		20 m ³		Co-mingle waste collection	TBA	TBA
Tree Timber & Lumbar, Floors, Beams and Plywood	120 m ³	155 m ³		Stockpiled on-site for chipping and reuse in landscaping or recycled off-site	TBA	TBA
Timber Fencing		60 m ³		Stockpiled on-site and separated for recycling off-site	TBA	TBA
Pallets	*50 Units			Stockpiled for return to the supplier	TBA	TBA
Asphalt		12 m ³		Co-mingle waste collection	TBA	TBA
General Waste			420 m ³	Co-mingle waste collection	TBA	TBA
Asbestos Contaminated Material in Permanent Buildings			320 m ³	Asbestos contaminated waste will be isolated tested and transferred to a licensed facility where it's disposed of	TBA	TBA



Sub Total	120 m³	1737 m³	740 m³	
Total	2597 m³			

Narrative:

There is a substantial amount of demolition generated from buildings on-site. There are six types of structure built on-site; brick veneer, brick and block, concrete, fibre cement clad, concrete frame and timber

In their recent assessment, SLR Consulting Australia Pty Ltd found fourteen of the permanent buildings are affected by asbestos contaminated material totalling 779 m², consisting mostly of Flat AC sheeting, that is to be stripped out from the walls, ceilings and gables of existing buildings before demolition.

To minimise the threat of asbestos dust being released into the atmosphere and the associated OH&S impacts, it is likely that this material will not be compacted on-site, creating up to 40% of negative space by volume in bins, but that will depend on the extraction crew's methodology.

7.2. EXCAVATION

Type of material on Site	Estimated Volume (m ³) or Weight (t) (Most Favorable → Least)			On-Site Treatment	Off-Site Treatment	
	Reuse	Recycling	Disposal	Proposed reuse and/or recycling collection methods	Disposal/ Transport Contractor	Waste Depot, Recycling Outlet or Landfill site
Trees & Shrubs Roots	80 m ³			Separated to a designated truck to be chipped and reused on garden	TBA	Recycled
Cut		4950 m ³		Separated to a designated stockpile and taken off-site		
Fill	1050 m ³			Separated to a designated stockpile and reuse on-site or recycle off-site	TBA	Reused
Excavated Contaminated fill	Testing found no asbestos in-ground				N/A	N/A
Sub Total	1,130 m³	4,950 m³		NB: Hazmat investigation with results of in-ground testing of asbestos types and volumes by contractor ADE Consulting Group found no asbestos in 8 bore holes onsite.		
Total	6,080 m³					

Narrative:

TTW estimated the Cut and Fill on-site as; Cut at 4950 m³ and the Fill at 1050 m³, totaling 6080 m³. The overall 'risk' of the asbestos is 'low' with the rating of both the building materials - rated as 'good' and the in-ground asbestos – rated as 'low', with remediation of the building materials rated a 'low priority'. These buildings may have further unseen polluted areas and the in-ground contamination but beyond expectations. If any contamination is encountered the required steps as per Unexpected Find Protocol to be followed. Landscaping is to be undertaken by Urbis and soil sampling is part of their evaluation process prior to reusing Fill on-site as well as Fill used in foundation work.

7.3. CONSTRUCTION

Type of material on Site	Estimated Volume (m ³) or Weight (t) (Most Favorable → Least)			On-Site Treatment	Off-Site Treatment	
	Reuse	Recycling	Disposal	Proposed reuse and/or recycling collection methods	Disposal/ Transport Contractor	Waste Depot, Recycling Outlet or Landfill site
Brick, Brick-veneer, Concrete, Block, Wall Tiles & Cement		410 m ³		Co-mingle waste collection	TBA	TBA
Metals		275 m ³		Stockpiled on-site and separated for recycling off site	TBA	TBA
Timber Off-Cuts	100 m ³	180 m ³		Separate and stockpile on-site to chip and reuse or recycle	TBA	TBA
Cardboard		320 m ³		Co-mingle waste collection	TBA	TBA
Plasterboard		380 m ³		Co-mingle waste collection	TBA	TBA
Containers, Plastics, Plastic Packaging		80 m ³		Co-mingle waste collection	TBA	TBA
Pallets And Reels	150 units			Co-mingle waste collection	TBA	TBA
Liquid Waste			600 liters	Separate onsite and send off-site for dilution and separation	TBA	TBA
General Waste			325 m ³	Co-mingle waste collection	TBA	TBA
Sub Total	100 m³	1645 m³	325 m³	NB: The 150 'units' are pallets and reels returned to the suppliers. The 600 liters are an estimated paint and render washout.		
Total	2070 m³					

Narrative:

There are still options include potential to reuse the in-ground infrastructure including plumbing, pipe work, cables and drainage, which will impact waste volumes. Additionally, during excavation there is potential to reuse cut and fill that's still being tested. In the construction phase there is also options open to designers where waste volumes can be reduced by using certain design elements including pre-cast concrete, modular components including pre-cast slabs, panels, pre-cut timber and pre-cut plasterboard. Most waste will be co-mingled and taken over a weighbridge to be separated and recycled off-site at a licensed waste facility by a licensed waste contractor, but some materials may be stockpiled and reused on-site. Metal may be separated and placed into a metal only bin on-site and sent to a metal recycler. Concrete slurry will be allowed to dry on-site and go into mixed waste.

8. Contracts and purchasing

Each subcontractor working on the site will be required to adhere to this Waste Management Plan.

The Head Contractor will ensure each subcontractor:

- Takes practical measures to prevent waste being generated from their work.
- Implements procedures to ensure waste resulting from their work will be actively managed and where possible recycled, as part of the overall site recycling strategy or separately as appropriate
- Ensures that the right quantities of materials are ordered, minimally packaged and where practical prefabricated. Any oversupplied materials are returned to the supplier.
- Implements source separation of off cuts to facilitate reuse, resale, or recycling.

The Site Manager will be responsible for:

- Ensuring there is a secure location for on-site storage of materials to be reused on site, and for separated materials for recycling off site.
- Engaging appropriate waste and recycling contractors to remove waste and recycling materials from the site.
- Co-coordinating between subcontractors, to maximise on site reuse of materials.
- Monitoring of bins on a regular basis by site supervisors to detect any contamination or leakage.
- Ensuring the site has clear signs directing staff to the appropriate location for recycling and stockpiling station/s. And that each bin/skip/stockpile is clearly sign posted
- Providing training to all site employees and subcontractors in regard to the WMP as detailed in section 6 below.

Should a subcontractor cause a bin to be significantly contaminated, the Site Manager will be advised by a non-conformance report procedure. The offending subcontractor will then be required to take corrective action, at their own cost. The non-conformance process would be managed by the Head Contractors' Quality Management Plan.

9. Training and Education

All site employees and sub-contractors will be required to attend a site-specific induction that will outline the components of the WMP and explain the site specific practicalities of the waste reduction and recycling strategies outlined in the WMP.

All employees are to have a clear understanding of which products are being reused/recycled on site and where they are stockpiled. They are also to be made aware of waste reduction efforts in regard to packaging.

The site manager will post educational signage regarding the recycling activities on site in breakout areas, lunchrooms etc.

10. Review and Improvement

10.1. CONTINUOUS IMPROVEMENT

Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

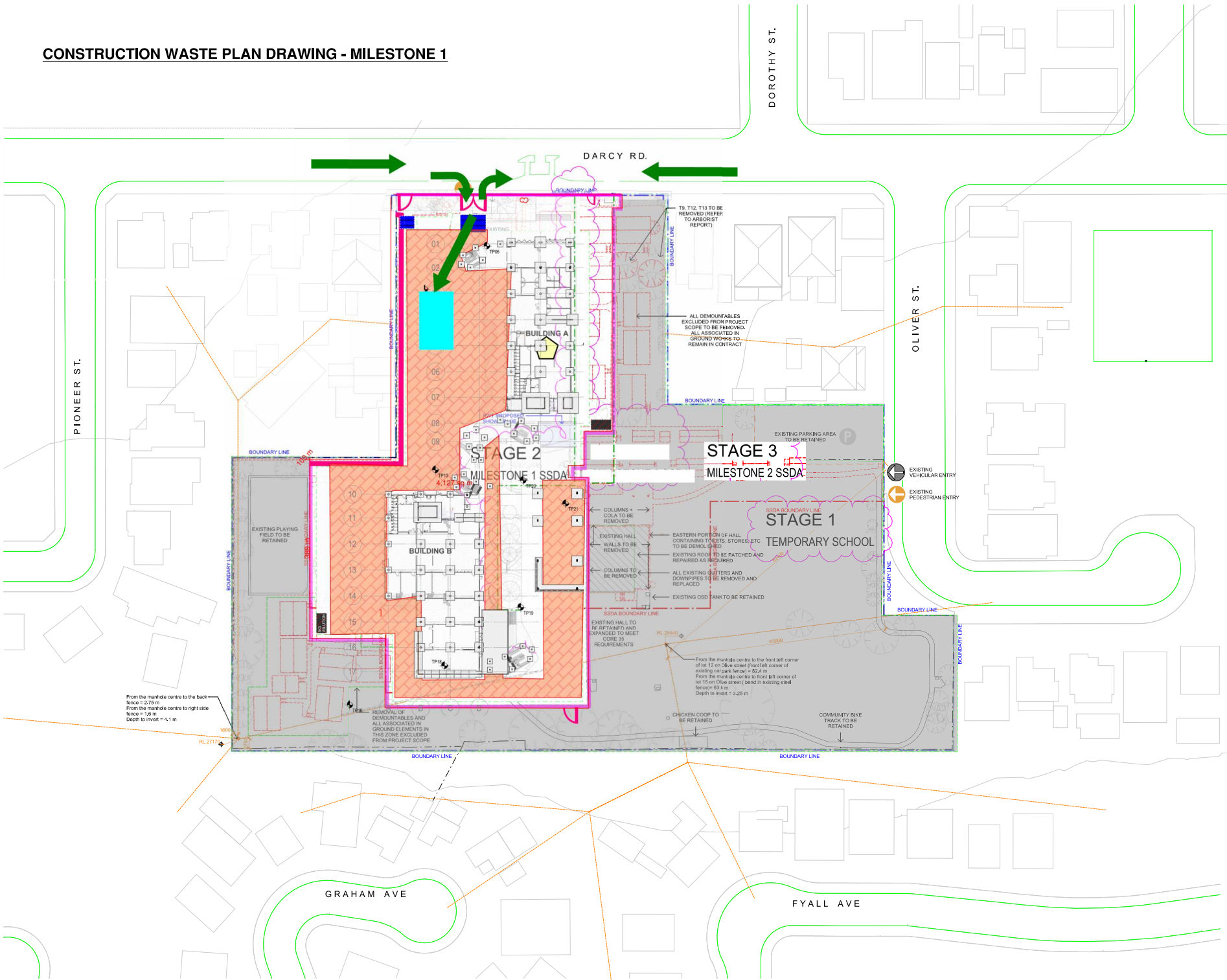
The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives and targets.



APPENDIX A: CONSTRUCTION WASTE MANAGEMENT PLAN DRAWINGS

CONSTRUCTION WASTE PLAN DRAWING - MILESTONE 1

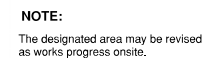


LEGEND

- STREET ACCESS
- THE ENTRANCE
- WASTE STORAGE AREA
- HOARDING

NOTE:

The designated area may be revised as works progress onsite.





APPENDIX B: WASTE AND RECYCLING REGISTER

WASTE AND RECYCLING REGISTER

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[illegible]

Please use this form to track all wastes taken off site. At the end of the month, the quantities are to be reported in the KPI Monthly Report

Document Name	Prepared By	Approved By	Last Review	Version No	No. Pages
QSE-R-16 Waste and Recycling Register	Reza Pirmoradi & Stephen Player	Andrew Andreou	15/05/2020	20	Page 1 of 1

Document is uncontrolled when printed
Date printed: 18/09/23

Thank you

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TAYLOR

Appendix 10 – Construction Soil and Water Management Plan

Construction Soil and Water Management Plan

Darcy Road Public School

Prepared for School Infrastructure NSW / 8 March 2024

221155

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4.0 Site Storage and Stockpile Locations 6

5.0 Stormwater and Flooding Flows..... 6

6.0 Erosion and Sediment Control 6

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Appendix B 10

Appendix C 14

1.0 Background

This Construction Soil and Water Management Plan (CSWMP) has been prepared to support a State Significant Development Application (SSDA) (ref: SSD-49073460) for the upgrade of the Darcy Road Public School (DRPS). The associated works proposed as part of the SSDA will consist of the following:

- Demolition of all buildings associated with the existing school, except for the existing hall which will be retained and refurbished,
- Construction of a new school comprising two interconnected buildings up to four storeys,
- Construction of new open spaces and landscaping,
- Refurbishment of the existing hall including demolition of existing ancillary features to the eastern side of the building and extension of the hall into the existing covered outdoor learning area, and,
- Extension of the existing car park.

This report has been prepared to satisfy the Draft Consent Condition item B17 (received 22 December 2023) as shown in Table 1 below:

Table 1: Draft Consent Conditions

Draft Consent Condition Item	Document Reference
B17. The Applicant must prepare a Construction Soil and Water Management Plan (CSWPSM) and the plan must address, but not be limited to the following:	-
a. Be prepared by a suitably qualified expert, in consultation with Council;	Refer to Curriculum Vitae (CV) provided in Appendix C. Council to be consulted following finalisation of consent conditions.
b. Measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;	Refer to Section 3.0 and Erosion and Sediment Control Plans in Appendix B for details.
c. Describe all erosion and sediment controls to be implemented during construction, including as a minimum, measures in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the 'Blue Book';	Refer to Sections 4.0, 5.0, 6.0 and Erosion and Sediment Control Plans in Appendix B for details.
d. Provide a plan of how all construction works will be managed in a wet-weather event (i.e. storage of equipment, stabilisation of the Site);	Refer to Section 6.0 and Construction Management Plan (CMP) report prepared by Taylor.

Draft Consent Condition Item	Document Reference
e. Detail all off-site flows from the site; and	Refer to Section 5.0 and Erosion and Sediment Control Plans in Appendix B for details.
f. Describe the measures that must be implemented to manage stormwater and flood flows for small and large sized events, including, but not limited to, 1 in 5-year ARI and 1 in 100-year ARI.	Refer to Section 5.0 and Erosion and Sediment Control Plans in Appendix B for details.

1.1 Reference Documents

The following documents have been reviewed and referenced in preparation of this CSWMP:

- City of Parramatta Development Control Plan (DCP) 2011.
- Blue Book – Managing Urban Stormwater Soils and Construction (4th Edition, Landcom NSW) 2004.
- Flood Impact Assessment Report prepared by TTW.
- Construction Environment Management Plan (CEMP) prepared by Taylor.
- Construction Management Plan (CMP) prepared by Taylor.

2.0 Extent of Works

DRPC is located at 98A Darcy Road, Wentworthville within the Parramatta LGA and is legally defined as the following:

- Lots 6-7 in DP 10955,
- Lot 1 in DP 782155,
- Lot A in DP 383734,
- Lot 1 in DP 122893,
- Lot 1 in DP 160134, and,
- Lots 12-16 in DP 16811.
-

The extent of SSDA physical works is limited to the area outlined in Appendix A. The existing hard courts and oval fall outside the extent of the proposed SSDA physical works. Staging of is to be as follows:

1. Stage 1 consists of the construction of a temporary school using demountables and associated infrastructure proposed under a separate planning approval.
2. Stage 2 will consist of Construction of Milestone 1 Permanent School under the SSDA.
3. Stage 3 will consist of Construction of Milestone 2 Permanent School under the SSDA.

Stage 1 works are proposed under a separate planning approval process and so are not required as part of this CSWMP. This report will address construction works associated with Stage 2 and 3 only.

3.0 Access Locations and Traffic Movements within the Worksite

Access to the worksite for the SSDA works is anticipated to be from Darcy Road for Stage 2 and Oliver Street for Stage 3. Refer to the CMP prepared by Taylor for further details. All vehicles will enter and exit the site in a forward direction, with direction of travel shown on the CEMP prepared by Taylor.

4.0 Site Storage and Stockpile Locations

Material storage areas are located within the site as detailed on the CMP prepared by Taylor.

5.0 Stormwater and Flooding Flows

The location of off-site stormwater flow control devices is detailed within the Erosion and Sediment Control Plans in Appendix B. Connections are to be temporary and implemented during the construction stage of the SSDA works for conveyance of construction stormwater runoff. For stage 2, a temporary connection to an existing pit located adjacent to Building B is to be made from the proposed Stage 2 sedimentation basin as outlined in Drawing C-0030 of Appendix B. For Stage 3, a temporary connection to an existing pit located within the existing oval is to be made from the proposed Stage 3 sedimentation basin as outlined in Drawing C-0030 of Appendix B.

The extent of works for stage 2 and 3, as shown in Appendix A, are located outside of the major flood paths for both the 5%AEP and 1% AEP floods of the Toongabbie Creek catchment as outlined in the "Flood Impact Assessment Report" prepared by TTW (dated 2024). The extent of works is only impacted by minor overland flows, which are to be conveyed via grading and catch drains towards the south-east of the site as per existing conditions.

6.0 Erosion and Sediment Control

An erosion and sediment control plan has been prepared for the site to prevent sediment laden stormwater from flowing into adjoining properties or receiving water bodies. Stormwater controls are detailed in the attached erosion and sediment control plans provided in Appendix B. These have been prepared with reference to Parramatta City Council's Development Control Plan and Landcom NSW's Managing Urban Stormwater, Soils and Construction (Blue Book).

A sedimentation basin for each development stage has been provided in accordance with Landcom NSW's Managing Urban Stormwater, Soils and Construction (Blue Book) as detailed in Appendix B. Additional measures to be implemented to manage stormwater during minor and larger storm events include catch drains, hay bale sediment filters, geotextile pit filters, silt fences and sandbag sediment traps.

Refer to the CMP prepared by Taylor for details of how works will be managed in a wet-weather event.

Prepared by
TAYLOR THOMSON WHITTING (NSW) PTY LTD
in its capacity as trustee for the
TAYLOR THOMSON WHITTING NSW TRUST



MITCHELL LEIGHTON
Engineer



CHRISTOPHER GENTILE
Senior Engineer

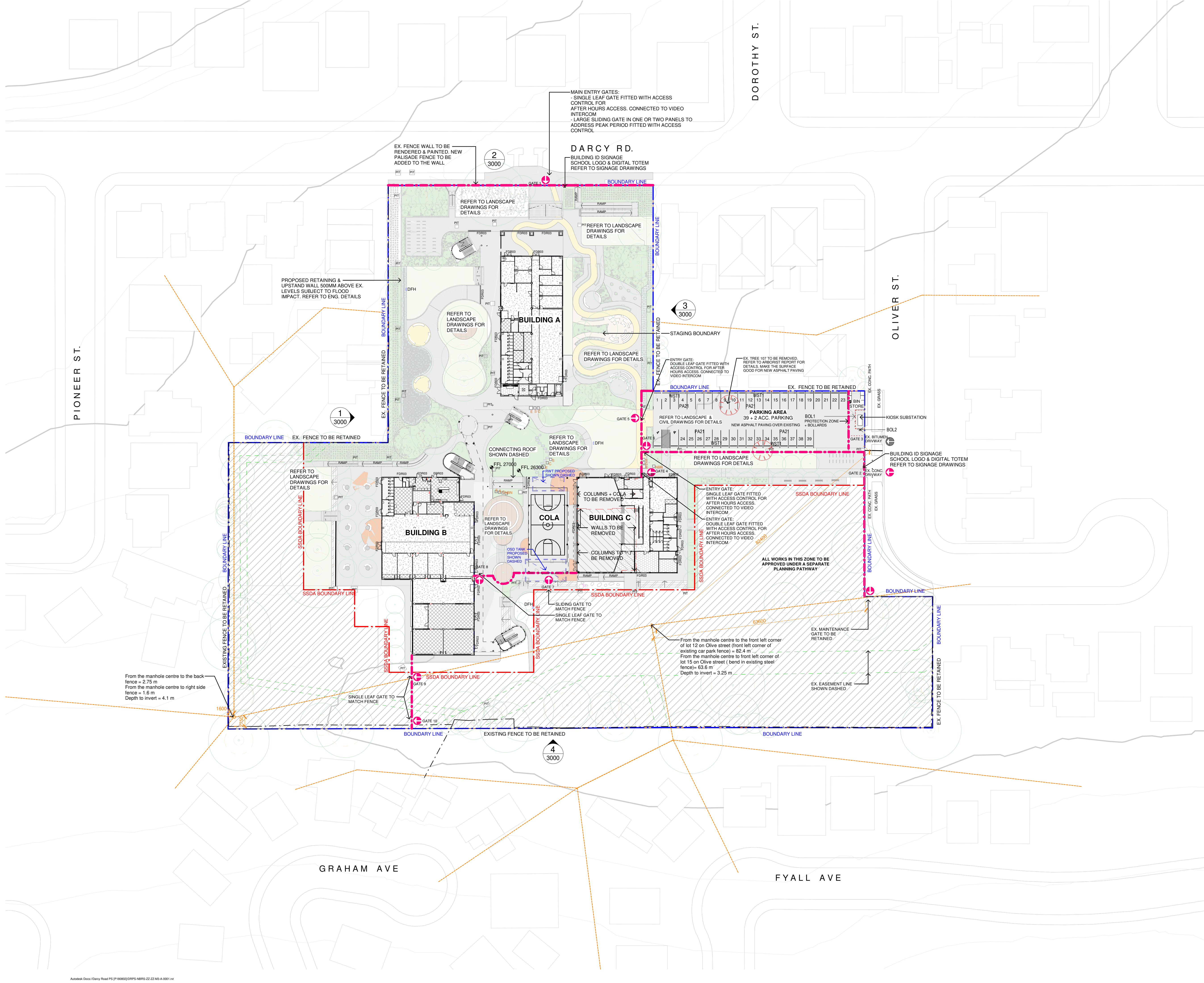
Authorised By
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in its capacity as trustee for the
TAYLOR THOMSON WHITTING NSW TRUST



GRACE CARPP
Associate

Appendix A

Site Plan and Extent of SSDA Physical Works



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- P** CAR PARKS
- V** VEHICLE ACCESS
- P** PEDESTRIAN ACCESS
- - -** PROPERTY BOUNDARY LINE
- - -** SSDA BOUNDARY LINE
- - -** EX. FENCE LINE
- - -** PROPOSED FENCE LINE
- RELOCATING / REMOVING DEMOUNTABLES
- DEMOLISHED BUILDING / STRUCTURE
- DEMOLISHED PAVEMENT, STAIRS & GARDEN BEDS
- A** BUILDINGS / DEMOUNTABLES TO BE RETAINED
- - -** SEWER LINE
- SEWER MANHOLE
- 3** GRATED DRAINS. REFER TO CIVIL & HYDRAULIC ENG. DRAWINGS FOR DETAILS

- REFER TO LANDSCAPE & CIVIL DRAWINGS & SPECIFICATION FOR SITE RELATED DETAILS INCLUDING FENCING, RETAINING WALLS, WALKWAYS, RAMPS, STAIRS & OTHER LANDSCAPE DETAILS.
- ALL WALKWAYS TO HAVE A MIN. CROSSFALL OF 1:40
- ALL FENCING & GATES TO BE COMPLIANT WITH EFSG REQUIREMENTS. FOR ADDITIONAL INFORMATION PLEASE REFER TO SINSW SECURITY DESIGN BRIEF.

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Issue				
No.	Date	Description	Chkd	
9	07/11/2023	Issue for Coordination	JV	
10	21/11/2023	Issue for Coordination	JV	
11	01/12/2023	90% DD Issue	JV	
12	08/02/2024	PRELIMINARY CC1 ISSUE	JV	
13	14/02/2024	Issue for Coordination	JV	

Changes to this Revision

90% DD

NBRS

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Project
Darcy Road Public School

at
98A Darcy Rd, Wentworthville NSW 2145

for
Taylor Construction + SINSW

Drawing Title
PROPOSED SITE PLAN

Date 14/02/2024 9:32:56 PM
Scale 1:500 @ A1

Drawing Reference
DRPS-NBRS-ZZ-XX-DR-A-0200

Revision
13

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Appendix B

Erosion and Sediment Control Plans

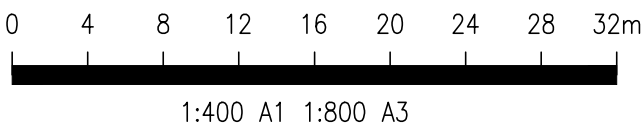
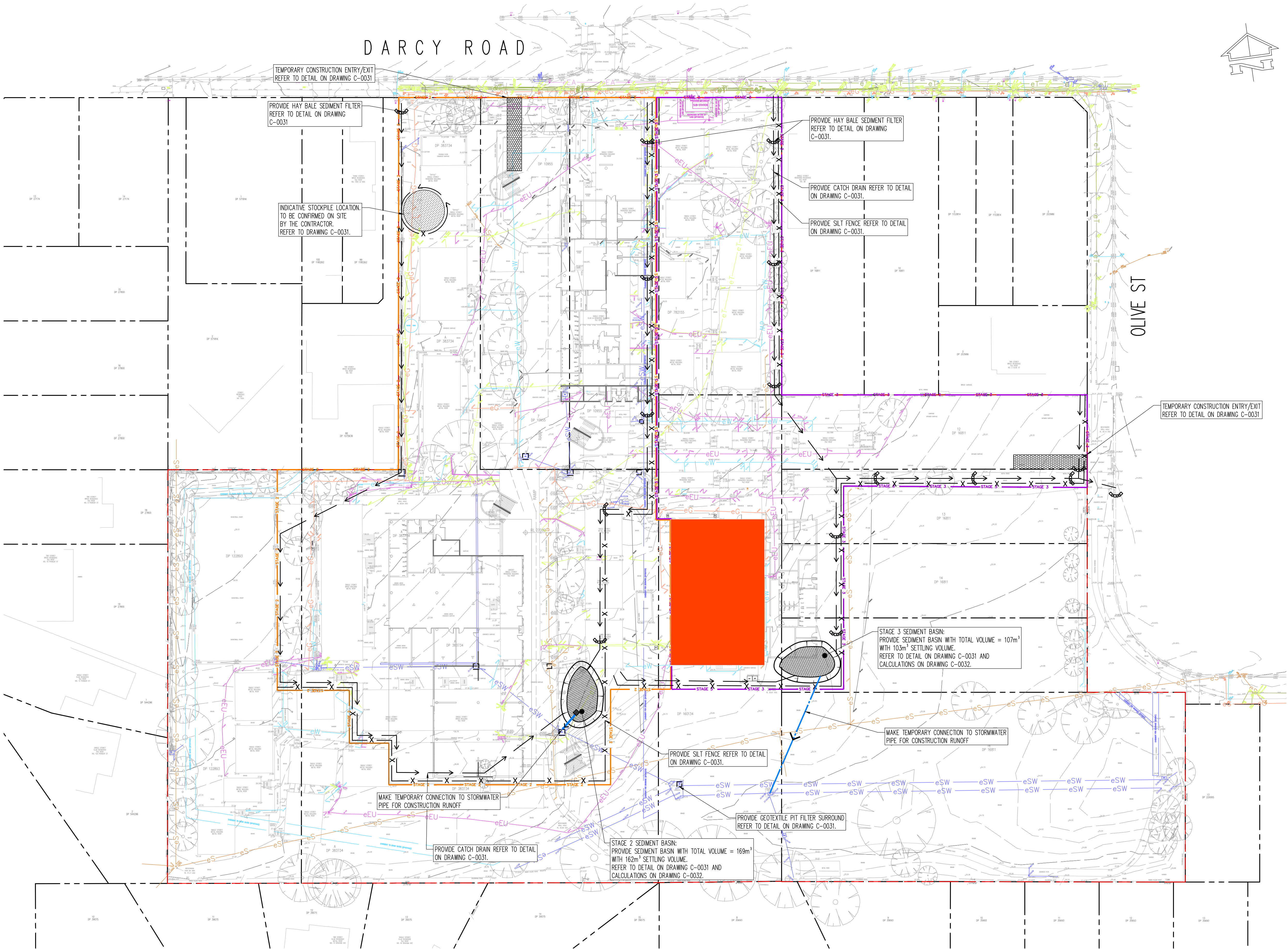
GENERAL LEGEND

- Site boundary
STAGE 2
STAGE 3
Stage 2 extent of SSDA physical works
Stage 3 extent of SSDA physical works

REFER TO DRG DRPS-TTW-CV-02
FOR OVERALL GENERAL LEGENDS

EROSION AND SEDIMENT
CONTROL LEGEND

- Siltation fence
Stormwater pit with Geotextile filter surround
Hay bale barriers
Catch drain



THIS DRAWING HAS BEEN PREPARED USING COLOUR

FOR CROWN CERTIFICATE ONLY

Filename: DRPS-TTW-ZZ-GF-DR-C-0030.dwg - USER: admin - Plot File Created: Mar 08, 2024 - 2:17pm

6	ISSUE FOR 90% DD	CG	AW	4.12.23					
5	ISSUE FOR 50% DD	SF	AW	07.09.23					
4	SCHEMATIC DESIGN - TENDER ISSUE	SF	JH	28.04.23					
3	SCHEMATIC DESIGN - TENDER ISSUE	SF	JH	24.11.22	9	ISSUE FOR CROWN CERTIFICATE	CG	AW	8.03.24
2	SCHEMATIC DESIGN - TENDER ISSUE	SF	JH	22.11.22	8	AMENDED LANDSCAPE AND STORMWATER	CG	AW	15.02.24
1	ISSUE FOR INFORMATION	SF	JH	07.10.22	7	MINOR AMENDMENTS	CG	AW	18.01.24
Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date



NBRS

TAYLOR



Project
DARCY ROAD
PUBLIC SCHOOL

Job No
221155

Sheet Subject
EROSION AND SEDIMENT
CONTROL PLAN

Scale : A1
1:400
Drawn
JH
Authorised
NB

Drawing No
DRPS-TTW-ZZ-GF-DR-C-0030
Revision
9

Plot File Created: Mar 08, 2024 - 2:17pm

EROSION AND SEDIMENT CONTROL NOTES

- All work shall be generally carried out in accordance with
 - Local authority requirements,
 - EPA – Pollution control manual for urban stormwater,
 - LANDCOM NSW – Managing Urban Stormwater: Soils and Construction ("Blue Book").
- Erosion and sediment control drawings and notes are provided for the whole of the works. Should the Contractor stage these works then the design may be required to be modified. Variation to these details may require approval by the relevant authorities. The erosion and sediment control plan shall be implemented and adapted to meet the varying situations as work on site progresses.
- Maintain all erosion and sediment control devices to the satisfaction of the superintendent and the local authority.
- When stormwater pits are constructed prevent site runoff entering the pits unless silt fences are erected around pits.
- Minimise the area of site being disturbed at any one time.
- Protect all stockpiles of materials from scour and erosion. Do not stockpile loose material in roadways, near drainage pits or in watercourses.
- All soil and water control measures are to be put back in place at the end of each working day, and modified to best suit site conditions.
- Control water from upstream of the site such that it does not enter the disturbed site.
- All construction vehicles shall enter and exit the site via the temporary construction entry/exit.
- All vehicles leaving the site shall be cleaned and inspected before leaving.
- Maintain all stormwater pipes and pits clear of debris and sediment. Inspect stormwater system and clean out after each storm event.
- Clean out all erosion and sediment control devices after each storm event.

Sequence Of Works

- Prior to commencement of excavation the following soil management devices must be installed.
 - Construct silt fences below the site and across all potential runoff sites.
 - Construct temporary construction entry/exit and divert runoff to suitable control systems.
 - Construct measures to divert upstream flows into existing stormwater system.
 - Construct sedimentation traps/basin including outlet control and overflow.
 - Construct turf lined swales.
 - Provide sandbag sediment traps upstream of existing pits.
- Construct geotextile filter pit surround around all proposed pits as they are constructed.
- On completion of pavement provide sand bag kerb inlet sediment traps around pits.
- Provide and maintain a strip of turf on both sides of all roads after the construction of kerbs.

WATER QUALITY TESTING REQUIREMENTS

Prior to discharge of site stormwater, groundwater and seepage water into council's stormwater system, contractors must undertake water quality tests in conjunction with a suitably qualified environment consultant outlining the following:

- Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)
- If required subject to the environmental consultants advice, provide remedial measures to improve the quality of water that is to be discharged into Councils storm water drainage system. This should include comments from a suitably qualified environmental consultant confirming the suitability of these remedial measures to manage the water discharged from the site into Councils storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continually monitor the quality of water discharged from this site. This should outline the frequency of water quality testing that will be undertaken by a suitably qualified environmental consultant.

EROSION AND SEDIMENT CONTROL PUMP OUT NOTES

Any accumulated water contaminated with sediment, from a sediment basin or excavation pit, is to be flocculated or filtered in order to lower the suspended solid load to less than 50mg per litre gypsum gas or other approved flocculant should be applied within 24 hours of the end of the storm event. The gypsum must be spread evenly over the entire water surface. Pumping is not to occur for at least 36 hours and preferably 48 hours after application. Clean water is to be discharged to the water table via a hole bail sediment filter in a way that does not pick up sediment that has dropped to the bottom.
Note: gypsum is a hydrated form of calcium sulphate and is available at many swimming pool shops and hardware stores.



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4	ISSUE FOR 90% DD	CG	AW	4.12.23					
3	ISSUE FOR 50% DD	SF	AW	07.09.23					
2	SCHEMATIC DESIGN – TENDER ISSUE	SF	JH	22.11.22					
1	ISSUE FOR INFORMATION	SF	JH	07.10.22					
Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date

Client



Education
School Infrastructure

Architect



Builder



Engineer



612 9439 7288 | Level 6, 73 Miller Street, North Sydney, NSW 2060

Project

DARCY ROAD
PUBLIC SCHOOL

Job No
221155

Sheet Subject

EROSION AND SEDIMENT
CONTROL DETAILS
SHEET 1

Scale : A1	Drawn	Authorised
AS SHWON	JH	NB
Drawing No	Revision	
DRPS-TTW-ZZ-GF-DR-C-0031	6	
Plot File Created: Mar 08, 2024 - 2:17pm		

EROSION AND SEDIMENT CONTROL NOTES

- All work shall be generally carried out in accordance with
 - Local authority requirements,
 - EPA – Pollution control manual for urban stormwater,
 - LANDCOM NSW – Managing Urban Stormwater: Soils and Construction ("Blue Book").
- Erosion and sediment control drawings and notes are provided for the whole of the works. Should the Contractor stage these works then the design may be required to be modified. Variation to these details may require approval by the relevant authorities. The erosion and sediment control plan shall be implemented and adapted to meet the varying situations as work on site progresses.
- Maintain all erosion and sediment control devices to the satisfaction of the superintendent and the local authority.
- When stormwater pits are constructed prevent site runoff entering the pits unless silt fences are erected around pits.
- Minimise the area of site being disturbed at any one time.
- Protect all stockpiles of materials from scour and erosion. Do not stockpile loose material in roadways, near drainage pits or in watercourses.
- All soil and water control measures are to be put back in place at the end of each working day, and modified to best suit site conditions.
- Control water from upstream of the site such that it does not enter the disturbed site.
- All construction vehicles shall enter and exit the site via the temporary construction entry/exit.
- All vehicles leaving the site shall be cleaned and inspected before leaving.
- Maintain all stormwater pipes and pits clear of debris and sediment. Inspect stormwater system and clean out after each storm event.
- Clean out all erosion and sediment control devices after each storm event.

Sequence Of Works

- Prior to commencement of excavation the following soil management devices must be installed.
 - Construct silt fences below the site and across all potential runoff sites.
 - Construct temporary construction entry/exit and divert runoff to suitable control systems.
 - Construct measures to divert upstream flows into existing stormwater system.
 - Construct sedimentation traps/basin including outlet control and overflow.
 - Construct turf lined swales.
 - Provide sandbag sediment traps upstream of existing pits.
- Construct geotextile filter pit surround around all proposed pits as they are constructed.
- On completion of pavement provide sand bag kerb inlet sediment traps around pits.
- Provide and maintain a strip of turf on both sides of all roads after the construction of kerbs.

WATER QUALITY TESTING REQUIREMENTS

Prior to discharge of site stormwater, groundwater and seepage water into council's stormwater system, contractors must undertake water quality tests in conjunction with a suitably qualified environment consultant outlining the following:

- Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)
- If required subject to the environmental consultants advice, provide remedial measures to improve the quality of water that is to be discharged into Councils storm water drainage system.This should include comments from a suitably qualified environmental consultant confirming the suitability of these remedial measures to manage the water discharged from the site into Councils storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continually monitor the quality of water discharged from this site. This should outline the frequency of water quality testing that will be undertaken by a suitably qualified environmental consultant.

EROSION AND SEDIMENT CONTROL PUMP OUT NOTES

Any accumulated water contaminated with sediment, from a sediment basin or excavation pit, is to be flocculated or filtered in order to lower the suspended solid load to less than 50mg per litre gypsum gas or other approved flocculant should be applied within 24 hours of the end of the storm event. The gypsum must be spread evenly over the entire water surface. Pumping is not to occur for at least 36 hours and preferably 48 hours after application. Clean water is to be discharged to the water table via a hole bail sediment filter in a way that does not pick up sediment that has dropped to the bottom.
Note: gypsum is a hydrated form of calcium sulphate and is available at many swimming pool shops and hardware stores.



FOR CROWN CERTIFICATE ONLY

1. Erosion Hazard and Sediment Basins

Site Name:

Site Location:

Precinct/Stage:

Other Details:

Site area	Sub-catchment or Name of Structure						Notes
	STG 2	STG 3					
Total catchment area (ha)	0.764	0.487					
Disturbed catchment area (ha)	0.764	0.487					

Soil analysis (enter sediment type if known, or laboratory particle size data)

Sediment Type (C, F or D) if known:	D	D					From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)							Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)							
% clay (fraction finer than 0.002 mm)							
Dispersion percentage							E.g. enter 10 for dispersion of 10%
% of whole soil dispersible							See Section 6.3.3(e). Auto-calculated
Soil Texture Group	D	D					Automatic calculation from above

Rainfall data

Design rainfall depth (no of days)	5	5					See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	85	85					
x-day, y-percentile rainfall event (mm)	33.1	33.1					
Rainfall R-factor (if known)	2500	2500					
IFD: 2-year, 6-hour storm (if known)							Only need to enter one or the other here

RUSLE Factors

Rainfall erosivity (R -factor)	2500	2500					Auto-filled from above
Soil erodibility (K -factor)	0.022	0.022					RUSLE LS factor calculated for a high rill/interill ratio.
Slope length (m)	143	127					
Slope gradient (%)	3.3	3.3					
Length/gradient (LS -factor)	0.97	0.91					
Erosion control practice (P -factor)	1.3	1.3	1.3	1.3	1.3	1.3	
Ground cover (C -factor)	1	1	1	1	1	1	

Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)

Storage (soil) zone design (no of months)	2	2					Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.64	0.64					See Table F2, page F-4 in Appendix F

Calculations and Type D/F Sediment Basin Volumes

Soil loss (t/ha/yr)	69	65					
Soil Loss Class	1	1					See Table 4.2, page 4-13
Soil loss (m ³ /ha/yr)	53	50					Conversion to cubic metres
Sediment basin storage (soil) volume (m ³)	7	4					See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m ³)	162	103					See Sections 6.3.4(i) for calculations
Sediment basin total volume (m ³)	169	107					

NB for sizing of Type C (coarse) sediment basins, see Worksheet 3 (if required).

2. Flow Calculations

Peak flow is given by the Rational Formula: $Q_y = 0.00278 \times C_{10} \times F_y \times I_{y,tc} \times A$

where: Q_y is peak flow rate (m³/sec) of average recurrence interval (ARI) of "Y" years
 C_{10} is the runoff coefficient (dimensionless) for ARI of 10 years.
 F_y is a frequency factor for "Y" years.
 A is the catchment area in hectares (ha)
 $I_{y,tc}$ is the average rainfall intensity (mm/hr) for an ARI of "Y" years and a design duration of "tc" (minutes or hours)

Time of concentration (t_c) = $0.76 \times (A/100)^{0.38}$ hrs

Note: For urban catchments the time of concentration should be determined by more precise calculations or reduced by a factor of 50 per cent. Place an x in the appropriate row below to automatically halve the time of concentration for that sub-catchment.

Structure Details							Notes
Name	STG 2	STG 3					
Catchment Area (ha)	0.764	0.487					
Place an x here to halve tc	X	X					Place an x if disturbed catchment
Time of concentration (tc)	4	3					minutes

Rainfall Intensities

1-year, tc	91.9	97.5					Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used
2-year, tc	101	107					
5-year, tc	130	136					
10-year, tc	151	157					
20-year, tc	172	178					
50-year, tc	199	207					
100-year, tc	221	229					

C10 runoff coefficient 0.9 0.9 Use AR&R or Table F3, pg F-6

Frequency Factors

FF, 1-year	0.8	0.8					Can use 0.8 for a construction site
FF, 2-year	0.85	0.85					Can use 0.85 for a construction site
FF, 5-year	0.95	0.95					Can use 0.95 for a construction site
FF, 10-year	1	1					Generally always 1
FF, 20-year	1.05	1.05					Can use 1.05 for a construction site
FF, 50-year	1.15	1.15					Can use 1.15 for a construction site
FF, 100-year	1.2	1.2					Can use 1.2 for a construction site

Flow Calculations

Flow Calculations								Notes
1-year, tc (m ³ /s)	0.141	0.095						
2-year, tc (m ³ /s)	0.164	0.111						
5-year, tc (m ³ /s)	0.236	0.157						
10-year, tc (m ³ /s)	0.289	0.191						
20-year, tc (m ³ /s)	0.345	0.228						
50-year, tc (m ³ /s)	0.437	0.29						
100-year, tc (m ³ /s)	0.507	0.335						

NB for flow calculations on sediment basin spillways, see Worksheet 3 (if required).

3. Sediment Basin Spillway Design

Structure Details						
Structure Name	STG 2	STG 3				Auto-filled from Worksheet 1
Catchment Area (ha)	0.764	0.487				Auto-filled from Worksheet 1
Time of concentration (tc)	4	3				Auto-calculated assuming tc is halved

Rainfall Intensities (IFD Values)

1 year, tc	91.9	97.5					Enter the relevant rainfall intensities (in mm/hr) for each of the nominated rainfall events. The time of concentration (tc) determines the duration of the event to be used
2 year, tc	101	107					
5 year, tc	130	136					
10 year, tc	151	157					
20 year, tc	172	178					
50 year, tc	199	207					
100 year, tc	221	229					

C10 runoff coefficient 0.9 0.9 Use AR&R or Table F3, pg F-6

Design ARI event (select): 100 100 100 100 100 100 Select design ARI (years) from dropdown

Frequency Factor 1.2 1.2 1.2 1.2 1.2 1.2 Auto-filled based on selected ARI

Flow Calculation 0.507 0.335 Auto-calculated based on selected ARI

4. Volume of Type C (Coarse) Sediment Basins

Type C Basin Design Criteria

Structure Name	STG 2	STG 3					Auto-filled from Worksheet 1
Catchment Area (ha)	0.764	0.487					Auto-filled from Worksheet 1
Sediment type (C, F or D)	D	D					Auto-filled from Worksheet 1
Design rainfall event	2	2					Choose design event from dropdown
Flow volume (m ³ /s)	0.164	0.111					Calculated from IFD values above
Area Factor	4100	4100	4100	4100	4100	4100	Default is 4,100. See pg 6-12
Depth of settling (water zone) (m)	0.6	0.6	0.6	0.6	0.6	0.6	Minimum is 0.6m (pg 6-12)

Type C Basin Volume Calculations

Basin Surface Area (m ²)	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Auto-calculated
Settling (water) zone volume (m ³)	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Auto-calculated
Storage (soil) zone volume (m ³)	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Auto-calculated
Total basin volume (m ³)	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Not Type C	Auto-calculated

Basin Shape

Enter length:width ratio	3	3	3	3	3	3	E.g. for 3:1 (L:W) enter 3.
Length (m)	N/A	N/A	N/A	N/A	N/A	N/A	These figures should be taken as a guide only. Detailed calcs might be required.
Width (m)	N/A	N/A	N/A	N/A	N/A	N/A	

				Client				Architect				Builder				Engineer				Project				Sheet Subject				Scale : A1				Drawn				Authorised									
				 Education School Infrastructure												 Structural Civil Traffic Facade 612 9439 7288 Level 6, 73 Miller Street, North Sydney, NSW 2060				DARCY ROAD PUBLIC SCHOOL				EROSION AND SEDIMENT CONTROL DETAILS SHEET 2				AS SHWON				JH				NB									
4 ISSUE FOR CROWN CERTIFICATE																												CG		AW		8.03.24													
3 AMENDED LANDSCAPE AND STORMWATER																												CG		AW		15.02.24													
2 MINOR AMENDMENTS																												CG		AW		18.01.24													
1 ISSUE FOR 90% DD																												CG		AW		4.12.23													
Rev		Description		Eng		Draft		Date		Rev		Description		Eng		Draft		Date		Rev		Description		Eng		Draft		Date		Rev		Description		Eng		Draft		Date							



DARCY ROAD PUBLIC SCHOOL

Job No 221155

EROSION AND SEDIMENT CONTROL DETAILS SHEET 2

Scale : A1	Drawn	Authorised
AS SHWON	JH	NB
Drawing No		Revision
DRPS-TTW-ZZ-GF-DR-C-0032		4
Plot File Created: Mar 08, 2024 - 2:17pm		

Appendix C

Curriculum Vitae (CV)



Christopher Gentile

Senior Civil Engineer

B. Eng (Civil), D. Eng Prac

christopher.gentile@ttw.com.au

Experience

2023 – Current
Senior Civil Engineer, TTW

2021 – 2023
Senior Civil Engineer, Martens & Associates

2015 – 2021
Civil Engineer, Martens & Associates

Christopher is a highly motivated and ambitious civil engineer with 10 years experience working in Australia.

Christopher has worked on a diverse range of projects including road corridors, residential subdivisions, commercial developments and remediation projects. He has worked on various projects in these fields from conception to completion.

Christopher has diverse experience in various fields of Civil Engineering including, road design, stormwater pit and pipe design, on-site detention design and modelling, water quality modelling and design, flood modelling and mitigation design, flood evacuation risk assessment, and traffic impact assessments. He has proficiency in various engineering tools including 12D model, DRAINS, MUSIC, SIDRA, Tuflow, AutoCAD, AutoTURN

Mixed Development

518A Old South Head Road, Rose Bay NSW – *Carpark and vehicle access design.*

4 Hill Road, West Pennant Hills NSW – *Carpark design, vehicle access design, traffic and safety assessment.*

Residential

37 Railway Road, Quakers Hill NSW. – *Flood impact modelling and assessment.*

34-44 Kent Street, Epping NSW. – *Stormwater modelling and design.*

10-14 Hazelwood Place, Epping NSW.
Second Avenue, Eastwood NSW. – *Stormwater modelling and design.*

Subdivision

Alma Den Way, Tahmoor NSW. – *Stormwater modelling and design.*

Fothergill Place, Tahmoor NSW. – *Roadworks and earthworks design.*

Long Gully Road, Singleton NSW. – *Road corridor design.*

Curves Drive, Manyana NSW. – *Roadworks and earthworks design.*

10 Boundary Road, Tallawong NSW. – *Stormwater modelling and design.*

53 Boundary Road, Tallawong NSW – *Roadworks and earthworks design. Stormwater modelling and design.*

127 Boundary Road, Tallawong NSW – *Stormwater modelling and design.*

Healthcare + Aged Car Centre

Rockford Road, Tahmoor NSW. – *Internal and public domain roadworks and earthworks design.*

Traffic impact assessment.

Vincents Road, Kurrajong NSW. – *Internal roadworks and earthworks design.*

Infrastructure + Data Centre

Velgrove Avenue, Parkwood, WA. – *Vehicle access design.*

Office + Commercial

752 George Street, South Windsor NSW – *Vehicle access design works*

221 Bringelly Road, Leppington NSW. – *Carpark and vehicle access design.*

13 Gongola Road, North Narrabeen NSW – *Flood Evacuation Risk Assessment*

Education

Leppington Anglican College NSW. – *Stormwater modelling and design. Internal roadworks, carpark and earthworks design.*

St Narsai College, Horsley Park NSW. – *Internal roadworks, carpark and earthworks design.*

St Annan Christian School NSW. – *Carpark and stormwater design.*

DOC24/139315

City of Parramatta
PO Box 32
Parramatta NSW 2124

29 January 2024

Darcy Road Public School Upgrade (SSD-49073460): Consultation in relation to Construction Soil and Water Management Sub-Plan (CSWMSP) in accordance with draft Condition B17

In accordance with draft condition B17 of the draft Development Consent for the Darcy Road Public School Upgrade, the following document is being submitted to City of Parramatta for consultation purposes:

- B17 – Darcy Road Public School – Construction Soil and Water Management Sub-Plan (CSWMSP).

The documents have been reviewed internally by me and the Compliance Team.

We request that City of Parramatta review the CSWMSP and provide any comments you may have in relation to the requirements noted in Condition B17 below.

Consultation Record / Particulars

Identified Party to Consult:	City of Parramatta
Consultation type:	Email (council@cityofparramatta.nsw.gov.au)
When is consultation required?	Prior to construction
Why	B17: The Applicant must prepare a Construction Soil and Water Management Sub-Plan (CSWMSP) and the plan must address, but not be limited to the following: (a) be prepared by a suitably qualified expert, in consultation with Council; (b) measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;

	(c) describe all erosion and sediment controls to be implemented during construction, including as a minimum, measures in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the 'Blue Book'; (d) provide a plan of how all construction works will be managed in a wet-weather events (i.e. storage of equipment, stabilisation of the Site); (e) detail all off-site flows from the site; and (f) describe the measures that must be implemented to manage stormwater and flood flows for small and large sized events, including, but not limited to 1 in 5-year ARI and 1 in 100-year ARI.
When was consultation scheduled/held	29/01/2024
Identify persons and positions who were involved	City of Parramatta
Provide the details of the consultation	Preparation of the Construction Soil and Water Management Sub-Plan (CSWMSP)

Yours sincerely



Mark Albert
Project Director
School Infrastructure NSW



Kemal Ozsayin

From: Mark Albert <Mark.Albert3@det.nsw.edu.au>
Sent: Monday, 29 January 2024 2:17 PM
To: council@cityofparramatta.nsw.gov.au
Cc: Kemal Ozsayin; Pete Krause
Subject: Darcy Road Public School SSD-49073460-B17 - Construction Soil and Water Management Sub-Plan (CSWMSP) [Response Required 05/02/2024]
Attachments: B17 - CSWMSP DRPS SSD49073460_240125.pdf; SSD-49073460-B17-CSWMSP-Cover Letter (Council).pdf

Hello,

Please find attached Cover Letter and associated draft Construction Soil and Water Management Sub-Plan (CSWMSP) in relation to the Darcy Road Public School Upgrade (SSD-49073460).

We request that City of Parramatta review the CSWMSP and provide any comments you may have in relation to the requirements noted in Condition B17 (refer to attached Cover Letter).

Please provide your comments by 05/02/2024.

Mark Albert

Project Director | Infrastructure Delivery | School Infrastructure NSW

0477 081 709 | mark.albert3@det.nsw.edu.au | education.nsw.gov.au

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Kemal Ozsayin

From: Mark Albert <Mark.Albert3@det.nsw.edu.au>
Sent: Monday, 5 February 2024 12:18 PM
To: council@cityofparramatta.nsw.gov.au
Cc: Kemal Ozsayin; Pete Krause
Subject: RE: Darcy Road Public School SSD-49073460-B17 - Construction Soil and Water Management Sub-Plan (CSWMSP) [Response Required 05/02/2024]

Hi,

I just wanted to follow up on the below and highlight that we hope to receive any subsequent comments by COB today.

Regards,

Mark Albert

Project Director | Infrastructure Delivery | School Infrastructure NSW

0477 081 709 | mark.albert3@det.nsw.edu.au | education.nsw.gov.au

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From: Mark Albert <Mark.Albert3@det.nsw.edu.au>
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To: council@cityofparramatta.nsw.gov.au
Cc: Kemal Ozsayin <kemal.ozsayin@rpinfrastructure.com.au>; Pete Krause <Pete.Krause@det.nsw.edu.au>
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Mark Albert

Project Director | Infrastructure Delivery | School Infrastructure NSW

0477 081 709 | mark.albert3@det.nsw.edu.au | education.nsw.gov.au

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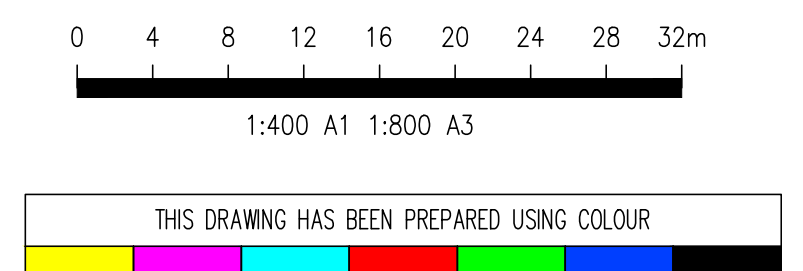


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Drawing No		Revision
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Plot File Created: Dec 04, 2023 - 4:04pm		

6	ISSUE FOR 90% DD	CG	AW	4.12.23					
5	ISSUE FOR 50% DD	SF	AW	07.09.23					
4	SCHEMATIC DESIGN – TENDER ISSUE	SF	JH	28.04.23					
3	SCHEMATIC DESIGN – TENDER ISSUE	SF	JH	24.11.22					
2	SCHEMATIC DESIGN – TENDER ISSUE	SF	JH	22.11.22					
1	ISSUE FOR INFORMATION	SF	JH	07.10.22					
Rev.	Description	Eno	Draft	Date	Rev.	Description	Eno	Draft	Date

EROSION AND SEDIMENT CONTROL NOTES

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WATER QUALITY TESTING REQUIREMENTS

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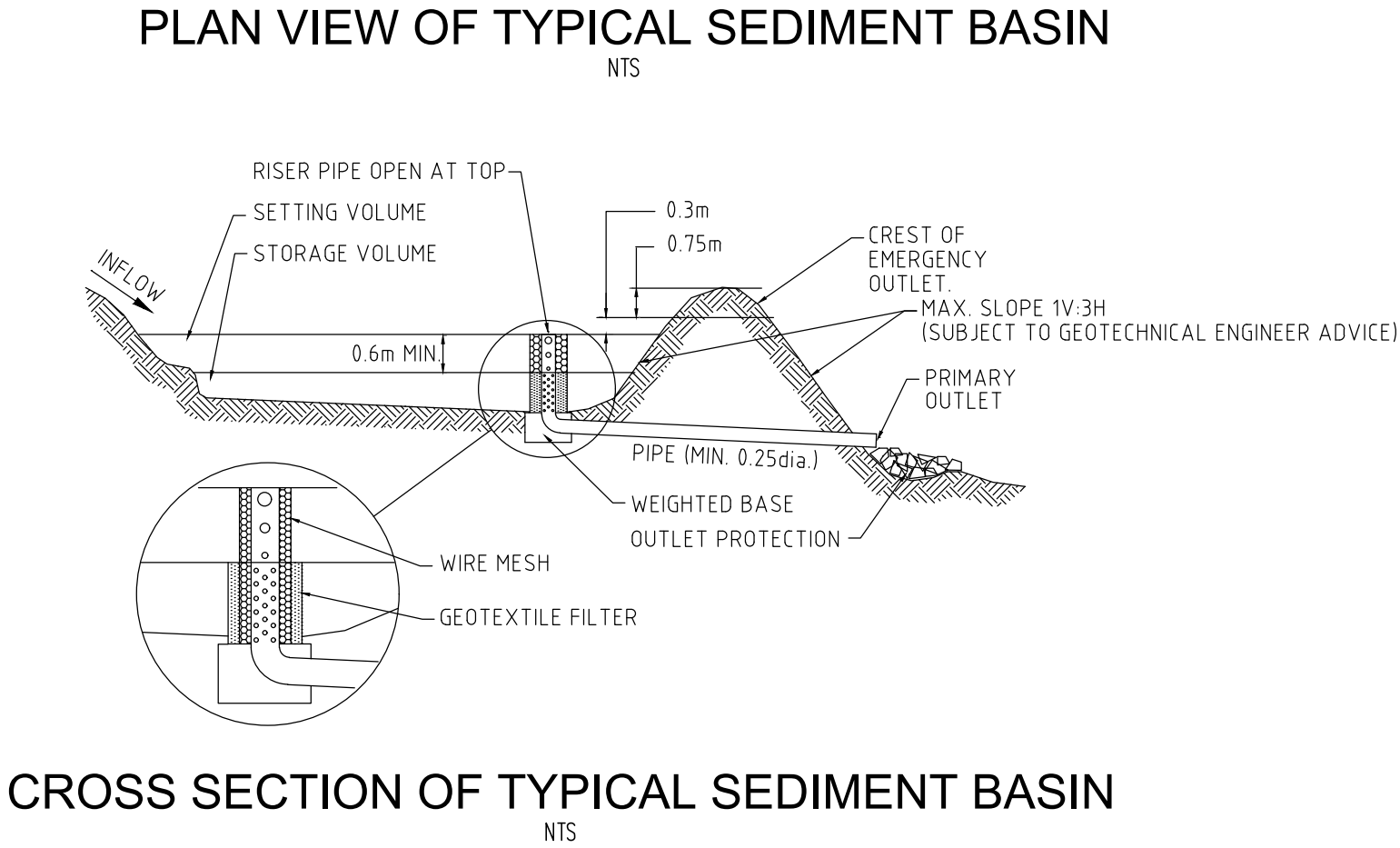
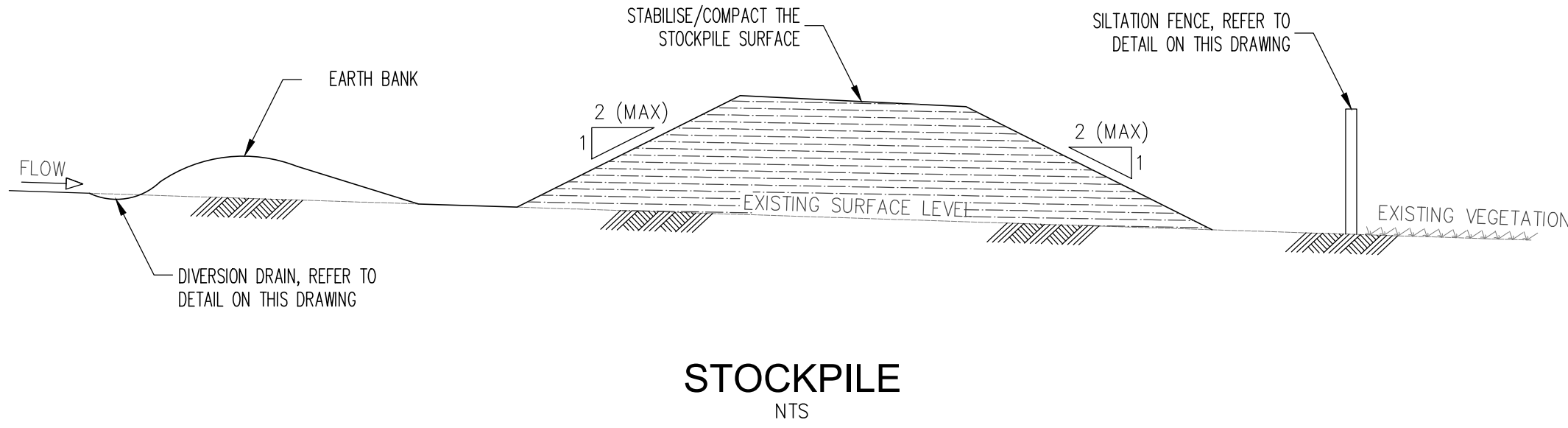
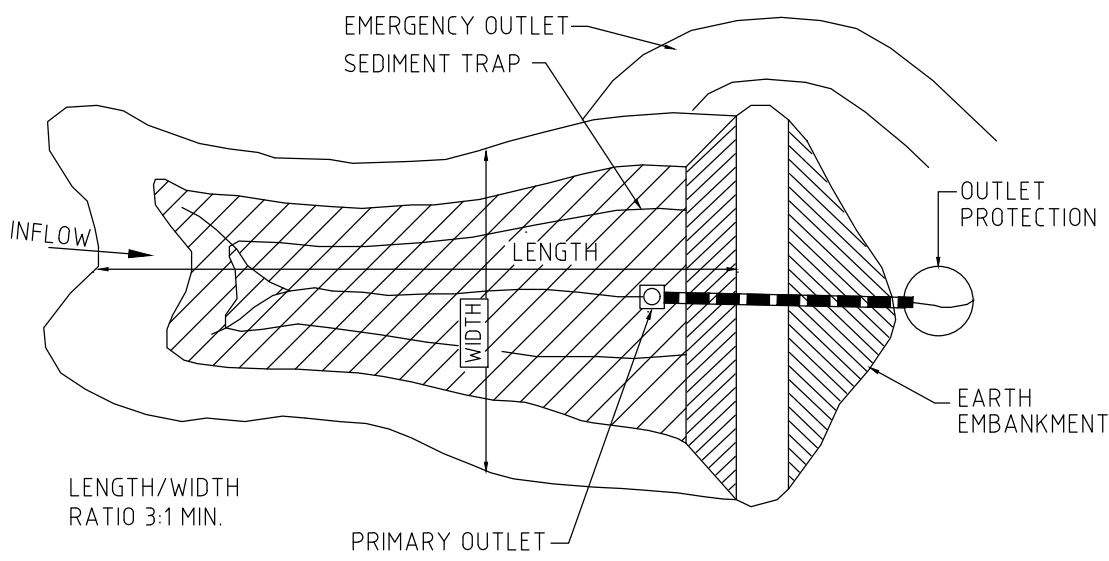
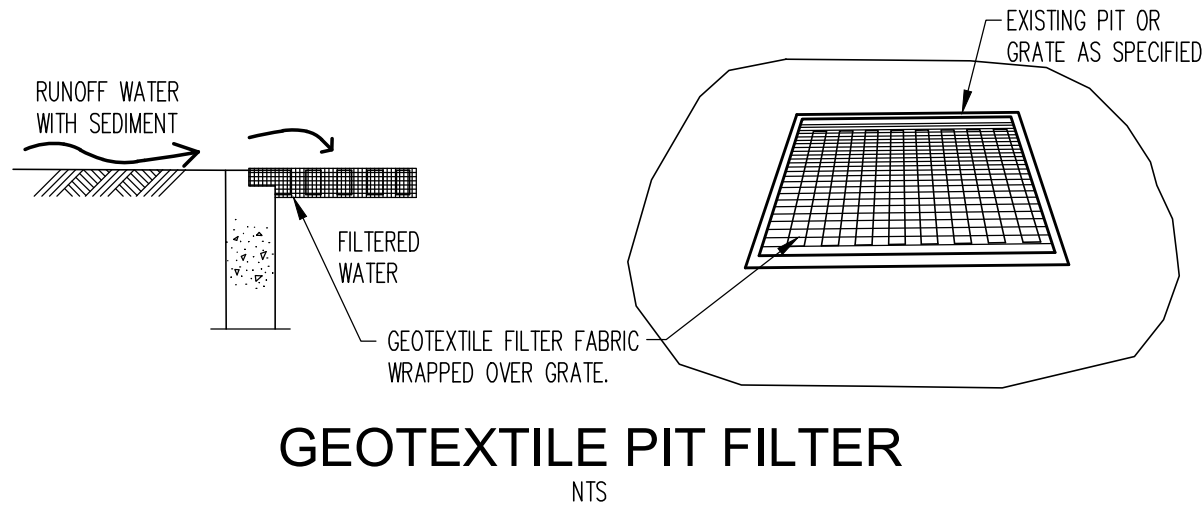
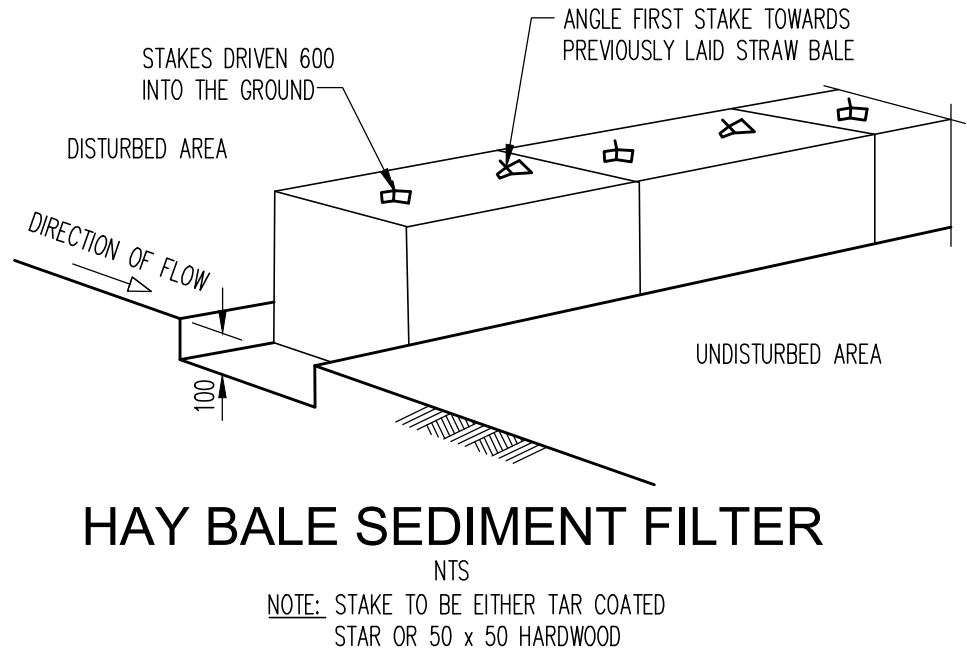
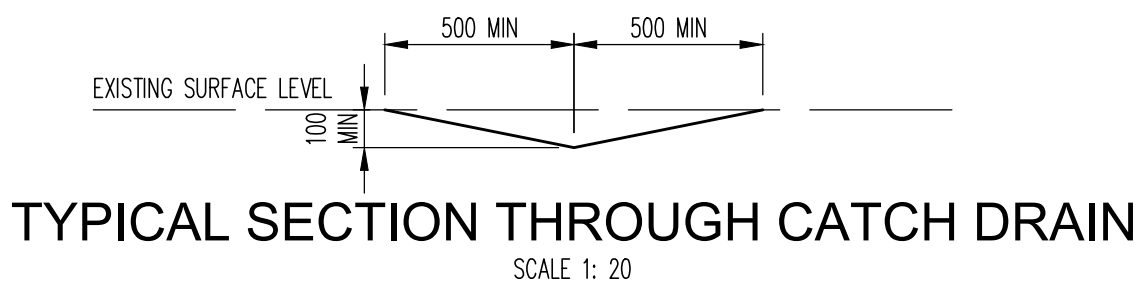
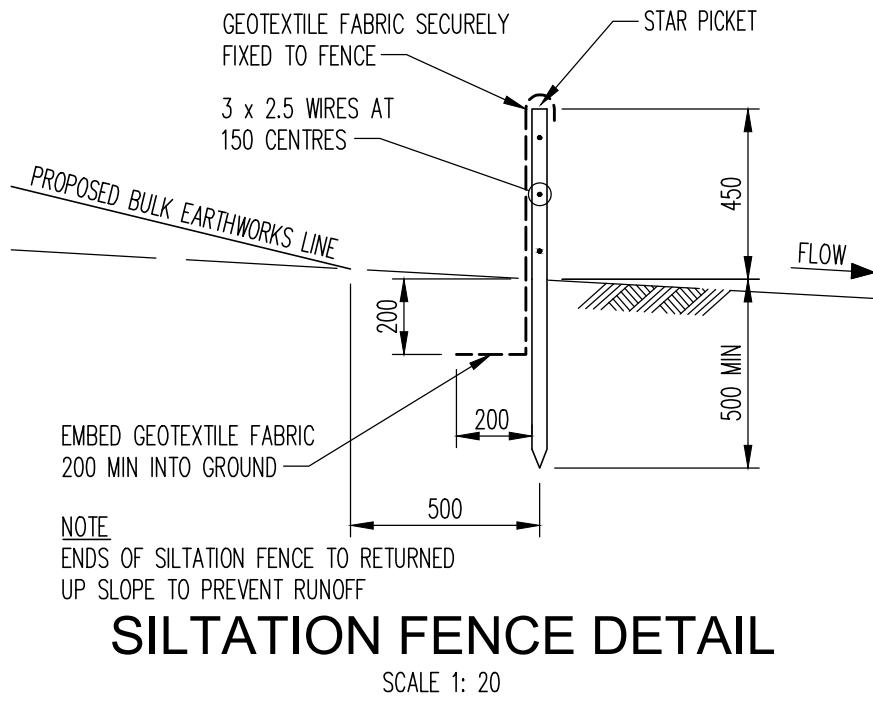
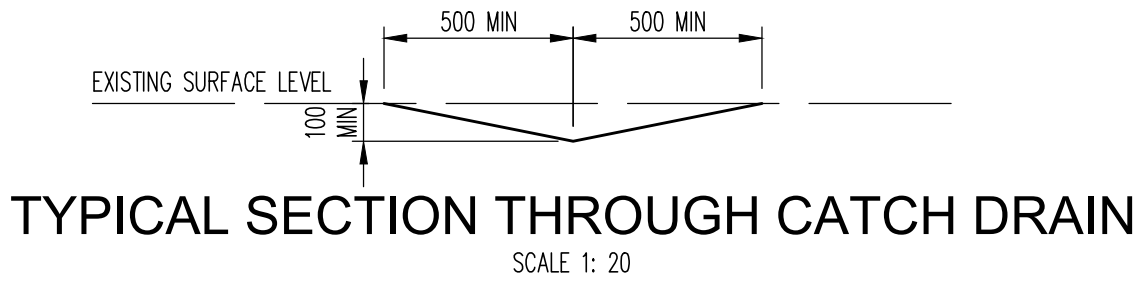
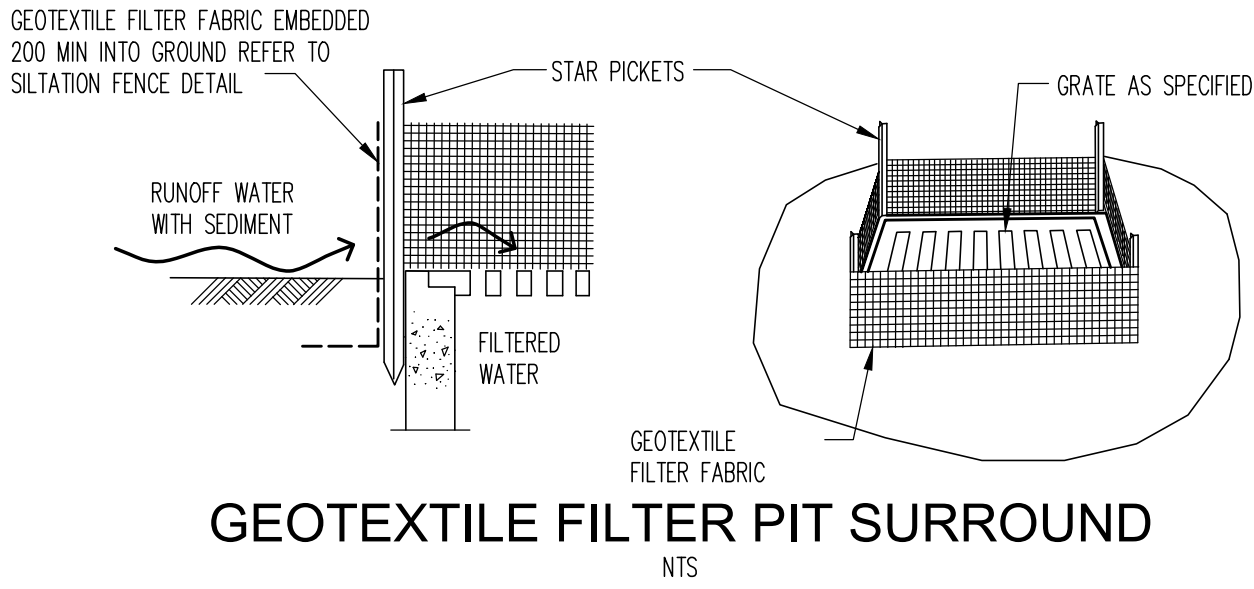
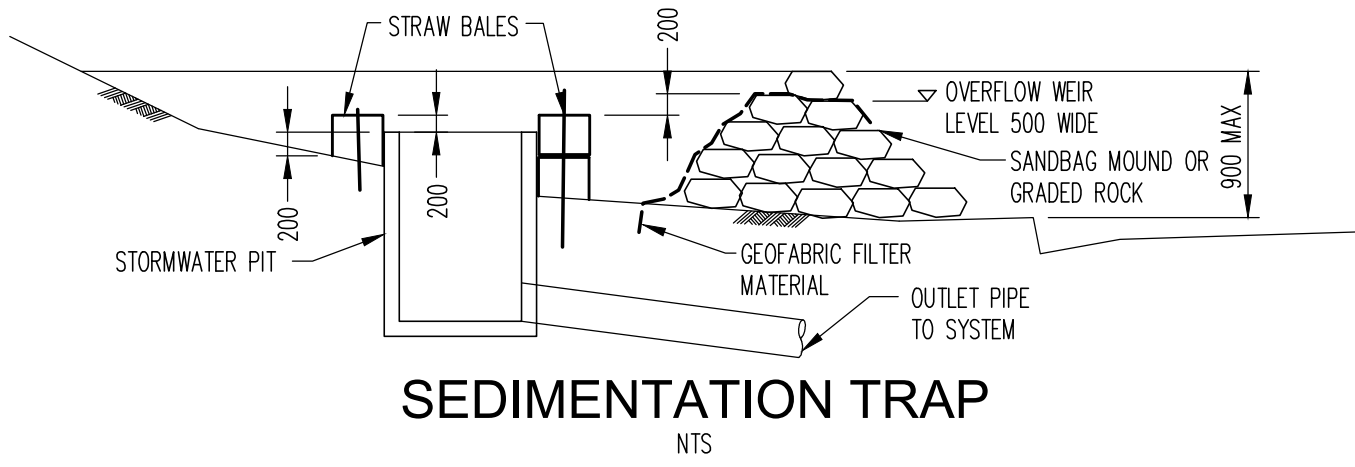
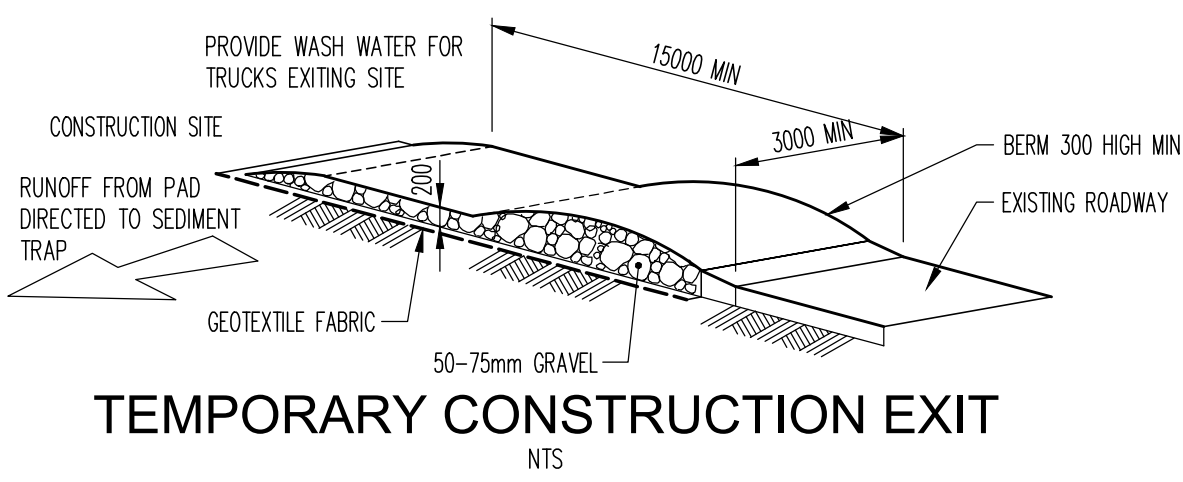
- Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)
- If required subject to the environmental consultants advice, provide remedial measures to improve the quality of water that is to be discharged into Councils storm water drainage system. This should include comments from a suitably qualified environmental consultant confirming the suitability of these remedial measures to manage the water discharged from the site into Councils storm water drainage system. Outlining the proposed, ongoing monitoring, contingency plans and validation program that will be in place to continually monitor the quality of water discharged from this site. This should outline the frequency of water quality testing that will be undertaken by a suitably qualified environmental consultant.

EROSION AND SEDIMENT CONTROL PUMP OUT NOTES

Any accumulated water contaminated with sediment, from a sediment basin or excavation pit, is to be flocculated or filtered in order to lower the suspended solid load to less than 50mg per litre gypsum gas or other approved flocculant should be applied within 24 hours of the end of the storm event. The gypsum must be spread evenly over the entire water surface. Pumping is not to occur for at least 36 hours and preferably 48 hours after application. Clean water is to be discharged to the water table via a hole bail sediment filter in a way that does not pick up sediment that has dropped to the bottom.
Note: gypsum is a hydrated form of calcium sulphate and is available at many swimming pool shops and hardware stores.

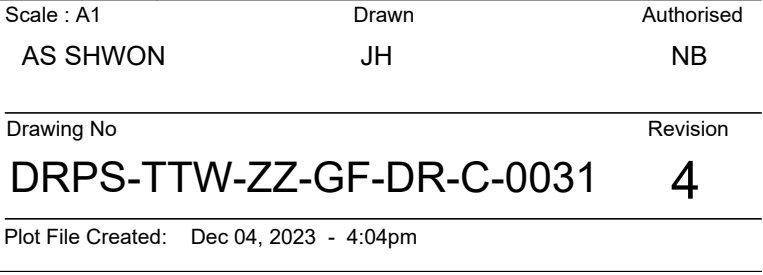
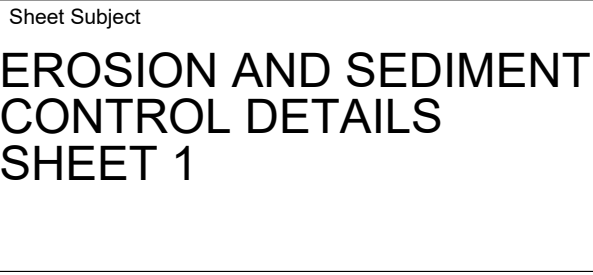
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FOR INFORMATION



			Client			Architect			Builder			Engineer			Project			Sheet Subject			Scale : A1			Drawn			Authorised		
															DARCY ROAD PUBLIC SCHOOL			EROSION AND SEDIMENT CONTROL DETAILS SHEET 1			AS SHWON			JH			NB		
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4	ISSUE FOR 90% DO	CG	AW	4.12.23											
3	ISSUE FOR 50% DO	SF	AW	07.09.23											
2	SCHEMATIC DESIGN – TENDER ISSUE	SF	JH	22.11.22											
1	ISSUE FOR INFORMATION	SF	JH	07.10.22											
Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	



- ## Sequence Of Works

- ## WATER QUALITY TESTING REQUIREMENTS

Compliance with the criteria of the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)

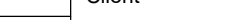
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FOR INFORMATION

										 Education School Infrastructure																																								Project DARCY ROAD PUBLIC SCHOOL										Sheet Subject EROSION AND SEDIMENT CONTROL DETAILS SHEET 2										Scale : A1 AS SHWON JH NB									
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GENERAL LEGEND

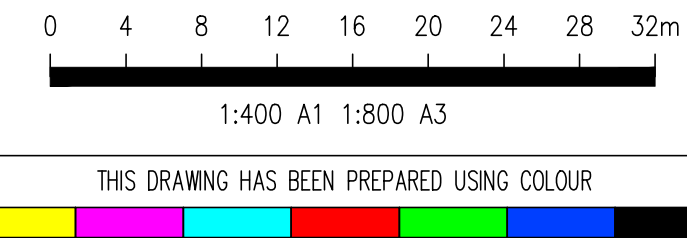
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- STAGE 2
- STAGE 3
- Stage 2 extent of SSDA physical works
- Stage 3 extent of SSDA physical works

REFER TO DRG DRPS-TTW-CV-02 FOR OVERALL GENERAL LEGENDS

SITEWORKS LEGEND

- Stormwater pit, flow direction and line with Invert level upstream Pipe size and class Pipe grade Flow (Litres per second) Invert level downstream
- Grated drain
- Subsoil drainage line (100 dia) - refer detail sheets
- IR Intermediate riser with subsoil drainage line (100 dia)
- FP Flushing point with subsoil drainage line (100 dia)
- Overland flow path
- Swale
- Existing pipe to be removed

- NOTE:**
- CONTRACTOR TO CONFIRM EXACT LOCATIONS AND EXTENTS OF SERVICES PRIOR TO CONSTRUCTION.
 - ALL PITS ARE TO BE FITTED WITH OCEAN PROTECT OCEANGUARDS OR APPROVED EQUIVALENT.
 - SUBSOIL DRAINAGE TO BE PROVIDED BEHIND ALL WALLS, KERBS AND AT PAVEMENT EDGES.
 - REDUNDANT/DECOMMISSIONED STORMWATER CONDUITS SHALL BE REMOVED WHERE POSSIBLE. WHERE SITE CONSTRAINTS PREVENT REMOVAL OF CONDUITS, THE CONDUITS ARE TO BE BACKFILLED WITH SAND SLURRY AND DOWNSTREAM AND UPSTREAM ENDS TO BE SEALED WITH MASS CONCRETE PLUG (SUBJECT TO ENGINEERS APPROVAL).
 - SURFACE WATER MUST BE DIVERTED AWAY FROM CLASS 1 BUILDINGS AS FOLLOWS:
 - SLAB-ON-GROUND - FINISHED GRADE LEVEL ADJACENT TO BUILDINGS: THE EXTERNAL FINISHED SURFACE SURROUNDING THE SLAB MUST BE DRAINED TO MOVE SURFACE WATER AWAY FROM THE BUILDING AND GRADED TO GIVE A SLOPE OF NOT LESS THAN:
 - 25MM OVER THE FIRST 1 METRE FROM THE BUILDING IN LOW RAINFALL INTENSITY AREAS OR SURFACES THAT A REASONABLY IMPERMEABLE (SUCH AS CONCRETE OR CLAY PAVING); OR
 - 50MM OVER THE FIRST 1 METRE FROM THE BUILDING IN ANY OTHER CASE.
 - SLAB-ON-GROUND - FINISHED SLAB HEIGHTS: THE HEIGHT OF THE SLAB-ON-GROUND ABOVE EXTERNAL FINISHED SURFACES MUST BE NOT LESS THAN:
 - 100MM ABOVE FINISHED GRADE LEVEL IN LOW RAINFALL INTENSITY AREAS OF SANDY, WELL-DRAINED AREAS; OR
 - 50MM ABOVE IMPERMEABLE (PAVED OR CONCRETE AREAS) THAT SLOPE AWAY FROM THE BUILDING IN ACCORDANCE WITH (A); OR
 - 150MM IN ANY OTHER CASE.
 - PIT GRATES, UNLESS OTHERWISE NOTED IN THESE PLANS OR COUNCIL SPECIFICATIONS, ARE TO BE MINIMUM:
 - CLASS D: FOR PUBLIC ROADS
 - CLASS C: FOR TRAFFICABLE AREAS OTHER THAN PUBLIC ROADS (E.G. CARPARK).
 - GLASS B: FOR ALL OTHER AREAS
 - ALL GRATED INLET PITS LOCATED WITHIN FOOTPATHS ARE TO BE 'HEEL SAFE' AND 'ANTI-SLIP'.
 - THE INTERFACE BETWEEN PITS/GRATES AND THE ADJACENT SURROUNDING FINISHED SURFACE, UNLESS OTHERWISE NOTED, IS TO BE AS FOLLOWS:
 - GRASS/LANDSCAPING: GRATE TO BE ENCASED IN A MINIMUM 100 MM CONCRETE SURROUND. CONCRETE SURROUND TO BE FLUSH WITH PIT GRATE.
 - ASPHALT: GRATE TO BE ENCASED IN A MINIMUM 100 MM CONCRETE SURROUND. CONCRETE SURROUND TO BE FLUSH WITH PIT GRATE.
 - CONCRETE PAVEMENT: GRATE TO BE CAST INTO SURROUNDING PAVEMENT.
 - PAVERS: GRATE TO BE INSTALLED PROUD OF THE PIT WALL. PAVERS ARE TO FINISH FLUSH WITH THE GRATE, SUCH THAT PIT WALL IS NOT VISIBLE. CONTRACTOR TO CUT A REBATE INTO PAVERS TO ACCOMMODATE GRATING AS REQUIRED.
 - PIPELINES AND DRAINAGE LINES IN ROADS AND TRAFFICABLE AREAS MUST BE BACKFILLED WITH APPROVED GRANULAR MATERIAL UNLESS OTHERWISE APPROVED BY COUNCIL/ENGINEERS.
 - PROVIDE 'HALGAN ENVIRONMENTAL 1100 FRP STORAGE TANK 10,000L' RAINWATER TANK, OR APPROVED EQUIVALENT, WHERE SHOWN ON THIS PLAN. RAINWATER TANK TO BE INSTALLED TO MANUFACTURERS SPECIFICATIONS. REFER TO DRAWING NO. C-0052 FOR MANUFACTURERS SPECIFICATION.
 - ALL PIPES TO BE SPIGOT AND SOCKET, RUBBER RING JOINTED WITH MINIMUM GRADE OF SM4. CULVERTS TO BE IN ACCORDANCE WITH COUNCIL SPECIFICATIONS.
 - STORMWATER PIPES TO BE INSTALLED OUTSIDE OF TPZ OF EXISTING TREES WHERE POSSIBLE. WHERE THIS CANNOT BE ACHIEVED, STORMWATER PIPES ARE TO BE INSTALLED USING NON-DESTRUCTIVE METHODS (CAREFUL HAND DIG, HYDRO-VAC, VERTICAL UNDER-BORING) TO RETAIN ANY MAJOR ROOTS 30mm OR GREATER IN DIAMETER. PIPES ARE TO BE THREADED THROUGH ROOTS.
 - PROVIDE GRATED DRAINS (GD) TO MANUFACTURERS SPECIFICATIONS, WHERE SHOWN ON THIS PLAN.
 - ALL GRATED DRAINS TO HAVE CLASS B GRATES UN.O.
 - ALL GRATED DRAINS LOCATED WITHIN FOOTPATHS TO HAVE 'HEEL-SAFE' AND 'ANTI-SLIP' GRATES.
 - ALL GRATED DRAINS TO HAVE MINIMUM GRATE OPENING WIDTH OF 200mm.
 - TOP OF GRATED DRAINS TO BE FLUSH WITH SURROUNDING FINISHED LANDSCAPE SURFACE LEVELS.
 - INTERNAL FALL OF ALL GRATED DRAINS TO BE DIRECTED TO PIPE CONNECTIONS TO STORMWATER PITS. ALL GRATED DRAINS TO BE FREE DRAINING (I.E. NO TRAPPED LOW POINTS).
 - REFER TO DRAWING C-0050 FOR ADDITIONAL DETAILS.
 - REFER TO COUNCIL'S STANDARD DRAWING FOR CONSTRUCTION DETAILS.



FOR INFORMATION

Filename: DRPS-TTW-ZZ-GF-DR-C-0042.dwg - USER: admin - Plot File Created: Dec 13, 2023 - 4:06pm

Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date	Rev	Description	Eng	Draft	Date
2	MINOR AMENDMENTS	CG	HA	13.12.23										
1	ISSUE FOR 90% DD	CG	HA	4.12.23										



NBRS

TAYLOR



DARCY ROAD
PUBLIC SCHOOL

Job No
221155

Sheet Subject
STORMWATER
MANAGEMENT
PLAN

Scale: A1 1:400	Drawn JH	Authorised NB
Drawing No DRPS-TTW-ZZ-GF-DR-C-0042	Revision 2	
Plot File Created: Dec 13, 2023 - 4:06pm		

Appendix 11 – Construction Asbestos Management Plan

Asbestos Management Plan for the Excavation and Removal of Asbestos Contaminated Soils

Darcy Road Public School
98A Darcy Road, Wentworthville NSW



Prepared for:

PF Civil

PO Box 4088

Winmalee NSW 2777

Prepared by:

P Clifton & Associates Pty Ltd

ABN: 69 041 751 671

PO Box 457, Turramurra NSW 2074

Mob: 0437 251 358

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DISTRIBUTION

**Asbestos Management Plan for the
Excavation and Removal of Asbestos Contaminated Fill Soils
Darcy Road Public School
98A Darcy Road, Wentworthville NSW**

8 March 2024

Copies	Recipient
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1	PF Civil PO Box 4088 Winmalee NSW 2777
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Att: Mr Brendan Roots

This document was prepared for the sole use of PF Civil and the regulatory agencies that are directly involved in this project, the only intended beneficiaries of our work. No other party should rely on the information contained herein without the prior written consent of P. Clifton & Associates Pty Ltd and PF Civil.

By

P Clifton & Associates Pty Ltd

ABN: 69 041 751 671

PO Box 457

Turramurra NSW 2074



Philip Clifton

Principal

BOHS IP402 Certified

SafeWork NSW Licenced Asbestos Assessor: LAA000119

1 INTRODUCTION

This Asbestos Management Plan (AMP) provides details of the work methodology for the excavation and removal of asbestos contaminated fill soils which are encountered during the bulk excavation of fill soils within the Darcy Road Public School site at 98A Darcy Road, Wentworthville NSW.

Work to demolish the existing school buildings to allow for the construction of a new school is being carried out at the present time. Following completion of the demolition work, removal fill soils and the underlying natural soils will be carried out as required to allow for the construction of the new school.

As there were asbestos containing materials in the existing school buildings, there is a possibility that fill soils within the site may contain pieces of visible asbestos containing material debris.

Initial sampling and analysis of soil samples from areas near to the existing building have been analysed and found to be free of asbestos. At the completion of the demolition work, further soil samples are to be collected for the purpose of classifying the fill soils in the building footprint areas.

All fill soils to be removed from the site are to be disposed of in accordance with the waste classification for those soils. All soils containing asbestos material debris are to be disposed of to a landfill facility licenced to accept those soils.

In order for the excavation and loading out of asbestos contaminated soils that are found to be present within the site to be undertaken in a safe manner, P. Clifton & Associates (PCA) have compiled this AMP which contains the scope of work, technical specification and information regarding the safe work procedures and regulatory requirements to be observed during the excavation, stockpiling and removal from site of the asbestos contaminated fill soil.

2 RESPONSIBILITIES

2.1 Principal

Taylor Constructions as the controller of the site is deemed as being the principal overseeing the bulk soil excavation and removal from the site.

The Principal will liaise with the site owner and asbestos removal contractor, as well as other stakeholders as necessary to ensure that the excavation and removal of asbestos contaminated fill soil within the site is carried out in accordance with the requirements of the applicable codes of practice and the NSW Health and Regulation 2017 and this AMP.

2.2 Asbestos Removal Contractor

The stockpiling and removal from the site of the asbestos contaminated surface fill soils found during the bulk excavation work will be carried out by PF Civil who are an experienced non-friable licenced asbestos removal contractor (Class B licence). PF Civil (the asbestos removal contractor) will undertake the asbestos removal work (soil excavation and off-site disposal) at the site and will be responsible for the following activities:

- The asbestos removal contractor's removal supervisor must oversee the work and must have completed an approved non-friable asbestos removal supervisor's course recognised by SafeWork NSW and Safe Work Australia. A copy of the training certificate / card is to be submitted to the building contractor and held on site for the duration of the work.
- The asbestos removal contractor's personnel must have completed an approved non-friable asbestos removal workers course recognised by SafeWork NSW and Safe Work Australia. Copies of the training certificates / cards for each of the asbestos removal contractor's personnel are to be submitted to the building contractor and held on site for the duration of the work. All new employees are to be provided copies of their training certificates / cards prior to commencing work on site.
- Undertake excavation and stockpiling of the asbestos contaminated fill soil as it is identified during surface soil excavation in each area of the site. This soil is to then be sampled for waste classification analysis and reporting.
- Load out and dispose of the asbestos contaminated fill soils at a NSW EPA landfill facility licenced to accept non-friable asbestos contaminated soil.
- Compliance with all safety requirements as detailed in this AMP and their site specific SWMS and ARCP.

2.3 Licenced Asbestos Assessor (LAA)

An experienced licenced asbestos assessor (LAA) – Philip Clifton of P. Clifton & Associates Pty Ltd - will be engaged to oversee the asbestos contaminated soil excavation and removal work and ensure that all OH&S requirements are fully complied with.

The LAA will be responsible for the following activities:

- Verifying that all persons working on the site (ACM removal and disposal work) have current training certificates for the work that will be carrying out.
- Ensure that the safe work method statement (SWMS) for the asbestos removal contractor is completed and signed off. The SWMS is to be provided to Linesight for their review and approval prior to the work commencing.
- Undertake soil sampling for laboratory analysis and following receipt of results, compile waste classification report(s) of the off-site disposal of the asbestos contaminated soils.
- Undertake daily airborne asbestos fibre monitoring.

- Undertake visual clearance inspection(s) and validation soil sampling at the completion of the excavation work in each part of the site and compile clearance reports.
- Manage unexpected finds of asbestos containing materials identified on the site but outside of the asbestos removal work areas.

3 REGULATORY REQUIREMENTS

3.1 Statutory Regulations and Code of Practice

The removal and disposal of asbestos containing construction materials in NSW is overseen by various authorities including SafeWork NSW (SafeWork), the NSW Environment Protection Authority (NSW EPA), local government (council) by administering various legislation, regulations and codes of practice. Statutory documents that are applicable to the work include (but are not limited to) the following:

- NSW Work Health & Safety Act 2011.
- NSW Work Health & Safety Regulation 2017.
- How To Safely Remove Asbestos Code of Practice issued by the NSW Government in December 2022.
- How To Manage and Control Asbestos in the Workplace issued by the NSW Government in December 2022.
- NSW Protection of the Environment Operations (General) Regulation 2009: Reg 92.
- NSW Protection of the Environment Operations (Waste) Regulation 2014: 'Sections 77 - 81.
- National Environment Protection (Assessment of Site Contamination) Measure. Schedule B (1) - Guideline on Investigation Levels for Soil and Groundwater (May 2013).
- enHEALTH Management of Asbestos in the Non-Occupational Environment (2005).
- NSW Environment Protection Authority (EPA) Waste Classification Guidelines – Part 1: Classification of waste (November 2014).

The proposed asbestos removal work at the site involves the excavation of asbestos contaminated surface fill soils from within the site (as identified during the bulk excavation of the fill soils), stockpiling of these soils for waste classification sampling and report preparation and loading out of these fill soils for off-site disposal at a licenced landfill facility.

3.2 Risk Assessment and Asbestos Classification

Health risk from asbestos containing materials only occurs from airborne asbestos fibres. Whilst asbestos containing materials remain undisturbed and there are no fibres being released from these materials then there is no actual risk posed. Materials which contain loose fibres have a high potential to generate airborne when disturbed.

In accordance with the NSW Work Health and Safety Regulation 2017, asbestos containing materials are classified as either 'friable' or 'non-friable' materials.

'Friable' asbestos containing materials are any material that contains asbestos and is in the form of a powder or can be crumbled, pulverised or reduced to powder by hand pressure when dry.

'Non-friable' asbestos containing material means any material (other than friable asbestos material) that contains asbestos. Typically, asbestos cement materials are classified as 'non-friable' asbestos containing materials.

Typically, asbestos cement sheet debris that is identified in surface fill soils is broken but not degraded from its original form and is classifiable as non-friable asbestos material for the purpose of removal. This will be confirmed when the soil containing asbestos cement sheet debris is inspected and sampled for waste classification analysis and reporting.

An asbestos removal work risk assessment is to be compiled by the licenced asbestos removal contractor. This document is to be reviewed by the LAA and is to be provided to Taylor Constructions for their review and approval prior to the work commencing.

3.3 Asbestos Removal Permit and Licence for Non - Friable Asbestos Removal

The excavation and off-site disposal of the fill soil containing asbestos cement sheet debris from the site may only be carried out by an experienced asbestos removal contractor holding a Class A licence for friable asbestos removal work or a contractor holding a Class B licence for non-friable asbestos removal work. Prior to the commencement of the proposed work a notification of non-friable asbestos removal work is to be submitted to SafeWork NSW.

The work on site is not to commence until the notification for non-friable asbestos removal is approved by SafeWork NSW. There is usually a five day wait between the submission of the application for non-friable asbestos removal and the allowable commencement of the work.

A copy of the asbestos removal notification and asbestos removal licence is to be held on site at all times during the work. Copies are to be provided to Taylor Constructions.

3.4 Asbestos Contaminated Soil Work Area

Temporary fencing or mesh fencing and star posts is to be erected around the asbestos contaminated fill soil excavation and stockpile area(s) at the site. This barricade is to be used to delineate the asbestos contaminated soil work area from the adjacent non-asbestos work areas. Where temporary fencing is used, shade cloth screening is to be placed on the temporary fencing in the vicinity of the asbestos contaminated soil excavation areas for the duration of the asbestos contaminated soil excavation work.

The asbestos removal work is to be contained within the surface fill soil excavation areas and is to progressively move as the excavation work progresses across the site. The storage of materials and equipment associated with the asbestos removal work is available on site. All materials and equipment that are left on site should be secured to prevent access by members of the public and the responsibility for the security of these materials and the working areas is the sole responsibility of the contractor.

The asbestos contaminated soil is to be covered at the completion of work each day with plastic sheeting with the asbestos removal work area to be secured with temporary fence panels with the access gate to be locked.

4 SCOPE OF WORK

Should unexpected asbestos containing material be encountered during construction, the AMP will be submitted to the Certifier prior to removal of identified asbestos from the site. The asbestos removal work that is to be completed at the site would then involve the excavation and stockpiling of fill soils containing asbestos material debris, soil sampling for waste classification reporting of these soils and loading out of this fill soil from the stockpile areas within the site.

In order to complete the bulk excavation of the surface fill soils and remove the asbestos contaminated soils from the excavation areas within the site, the following scope of work is to be completed:

- The asbestos contaminated soil removal areas are to be barricaded with temporary fence panels that are covered with shade cloth or plastic sheeting or plastic mesh fencing and star posts.
- Asbestos removal warning signs are to be placed on the barricade.
- All persons entering and / or working in the asbestos contaminated soil excavation work areas are to wear asbestos PPE (minimum of disposable coveralls, class P2 or P3 dust mask (RPE) and laceless washable boots or disposable boot covers). This PPE is required to be worn in the soil excavation work areas and stockpile loading out areas until all of the asbestos contaminated fill soil has been removed.
- Persons involved in the excavation work are to be trained in non-friable asbestos removal with a trained non-friable asbestos removal supervisor present.

- The asbestos contaminated surface fill soil that is identified during the excavation work is to be stockpiled as it is removed to allow for waste classification assessment prior to off-site disposal.
- The asbestos contaminated waste soil is to be removed from the site is to be loaded into covered leakproof trucks for disposal at a licenced landfill facility that can accept the waste based on the waste classification report compiled for this soil. The soil is to be transported from the site in PVC tarpaulin covered leakproof trucks or bins for disposal at the licenced landfill facility.
- The asbestos contaminated fill soil is to be wetted to minimise dust during excavation, loading out and transport to the landfill facility.
- When all of the stockpiled fill soil is removed from each of the contaminated soil stockpile areas, a visual inspection of the exposed soil is to be carried out to confirm that the remaining soil is free of asbestos fibre contamination.
- Validation soil samples are to be collected during the visual clearance inspection for laboratory analysis to confirm that there is no residual asbestos contamination remaining in each of the contaminated soil stockpile areas of the site.
- Written certification confirming that the remaining soil in these areas of the site is free of visible asbestos containing material and that these areas can be accessed without the use of asbestos PPE is to be provided and the barricades and warning signs are to be removed.

5 ASBESTOS REMOVAL PROCEDURE

The asbestos work procedure detailed below is designed to minimise and control the potential exposure of persons undertaking the work and also to prevent the exposure of persons in adjacent areas to airborne asbestos fibres.

A safe work method statement for the asbestos removal work is to be compiled by the asbestos removal contractor prior to undertaking the work.

The following procedure details the requirements for the excavation of surface fill soils and the stockpiling of asbestos contaminated soils and the excavation of the stockpiled fill soils for off-site landfill disposal.

1. Following identification of visible asbestos containing material debris, a barricade of temporary fencing or plastic fencing and tar posts is to be erected around the perimeter of each of the asbestos contaminated soil excavation and removal work area(s). Asbestos removal warning signs are to be placed at the entry to the asbestos removal work areas.
2. The asbestos contaminated fill soil that will be removed from the fill soil excavation work to be undertaken at the site is classifiable as 'non-friable asbestos containing material'.

3. A notification of non-friable asbestos removal work is to be submitted to SafeWork NSW by the licenced asbestos removal contractor undertaking the work.
4. A site and project specific safe work method statement for the proposed work including details of the asbestos related precautions to be incorporated into the asbestos removal work as required by section 299 of the Work Health and Safety Regulation 2017 is to be compiled by the asbestos removal contractor undertaking the work.
5. The asbestos removal contractor must compile an asbestos removal control plan as per section 3.5 of the How to Safely Remove Asbestos Code of Practice, August 2019.
6. All persons in machines that have enclosed cabs (excavators and trucks) are not required to wear asbestos PPE providing they remain in the cabins whilst in the work area and only enter / exit the vehicle at the perimeter of the work area. These machines must be air conditioned with HEPA filter fitted and the air conditioning to be set to recirculate at all times.

Persons operating excavation equipment without HEPA filters and / or without an air conditioning recirculate function are to wear full asbestos PPE and the air conditioning function is to not be used.

7. All persons on the ground in the excavation and soil loading out work areas or in open cab machines and who are undertaking the asbestos removal work are to wear disposable coveralls and a half face Class P2 dust mask (respiratory protective equipment - RPE) as well as gloves and washable laceless boots or disposable boot covers. All persons wearing RPE must be clean shaven.
8. The asbestos contaminated surface fill soil is to be stockpiled as it is identified during the bulk excavation work and is to be sprayed with water (as required) to minimise dust during excavation, stockpiling and loading out.
9. The stockpiled soil containing asbestos contamination is to be classified for off-site disposal and is to be loaded into trucks for transport to the waste disposal facility. Whilst loading of the soil into the trucks, the soil is to be sprayed with water to prevent dust generation.
10. Trucks used for the transport of the asbestos contaminated soil must be leakproof and have PVC tarpaulins that securely seal and cover the load. The waste soil is to be transported to a landfill facility licenced by the NSW Environment Protection Authority (NSW EPA) to accept non-friable asbestos containing material. Asbestos waste in excess of 100kg must be recorded in the NSW EPA waste locate app prior to leaving the site.
11. The transport of the asbestos contaminated waste is to be undertaken in covered leak proof trucks and is to be disposed of at a landfill site that can lawfully receive this waste in accordance with the 'Section 42 - Special Requirements Relating to Asbestos Waste' as detailed in the Protection of the Environment Operations (Waste) Regulation 2014: 'Sections 77 - 81.

12. Documentary evidence of the correct disposal of the waste shall be provided. This documentation will include name of authorised tip, weigh bridge docket and registration number of vehicle for every disposal. The waste disposal dockets are to be submitted weekly to the Linesight H & S team.
13. Following completion of the removal of the stockpiled asbestos contaminated soil, the excavation equipment and all other items of plant and tools used in the work are to be cleaned of asbestos contamination and asbestos contaminated soil. Cleaning is to be carried out prior to the plant and equipment moving to the next pile work area or prior to the items leaving the site.
14. When all of the stockpiled fill soil containing asbestos contamination has been excavated and removed from each identified area within the site, the stockpile area is to be inspected to confirm that the remaining exposed soils are free of asbestos contaminated fill soil.
15. Validations soil samples are to be taken from each of the stockpile areas for laboratory analysis to confirm that there is no remaining asbestos contamination in these areas.
16. Written clearance certification is to be provided confirming that these areas of the site are free of asbestos contaminated fill soil and that the area can be accessed without the use of asbestos PPE. The barricade and asbestos warning signs can then be removed. Validation reports are to be provide to PF Civil and Taylor Constructions.

6 REQUIREMENTS FOR ASBESTOS REMOVAL WORK

The asbestos removal work at the site is to be carried out in accordance with the requirements for the removal of non-friable asbestos containing material as detailed in the NSW Work Health and Safety Regulation 2017 and the NSW Government How to Safely Remove Asbestos Code of Practice issued in December 2022.

A summary of the main requirements to be implemented for the work is as follows:

Each of the asbestos removal work areas shall be contained within the areas where the visible asbestos containing material has been identified at the site with the excavation and load out areas to be delineated using temporary fencing or star posts and plastic mesh fencing.

Warning signs are to be placed at the entry to the asbestos removal work areas and should read "Asbestos Work Area, No Unauthorised Entry". These signs are to comply with Australian Standard 1319-1983: Safety signs for the occupational environment.

A change and decontamination area (designated area for changing into and out of asbestos PPE, no wet shower facilities required) is to be located at the entry to each of the 'non-friable' asbestos removal work areas.

All persons entering an asbestos removal work area are to change into asbestos protective equipment in the change area and undergo decontamination prior to leaving the work area. All asbestos PPE is to be removed in the decontamination area when exiting the work area.

6.1 Training and Health Assessment

The asbestos removal contractor shall provide instruction to all persons involved in the asbestos removal work that may be exposed to asbestos in the course of the work regarding the danger to health and the statutory requirements that are required to provide safe working conditions.

The asbestos contractor's staff, including the machine operators, involved with the removal of the asbestos contaminated waste must also be formally trained in safe non-friable asbestos removal working procedures and in the wearing and maintenance of protective clothing and equipment. The supervisor on the site is to have completed formal training in the supervision of non-friable asbestos removal. Evidence of this training is to be held on site and provided to Taylor Constructions.

All persons involved in the licenced asbestos removal work are to have completed current health assessments in accordance with Clauses 435 and 436 of the NSW WHS Regulation 2017.

6.2 Personal Protective Equipment

All persons entering the work areas (to undertake asbestos removal work) are to wear disposable coveralls that are rated Type 5 Category 3 (EN ISO 13982-1), disposable or re-usable Class P2 or P3 respirator, suitable gloves and washable laceless boots. Disposable boot covers may be used in lieu of washable laceless boots.

Operators of machines and trucks involved in the work are not required to wear asbestos PPE provided that the cabins of their machine / truck are air conditioned and that the air conditioning remains in operation at all times.

A machinery parking area is to be located adjacent to the decontamination and change area. Operators are only to enter / exit the machines and trucks in this area. Operators not wearing asbestos PPE are not permitted to exit the machines within the asbestos work area.

Disposable or re-usable respirators are to be issued to each person entering the work area with re-usable respirators to be cleaned prior to leaving the asbestos work area.

Persons entering the work areas for supervision or inspection of the work are to wear disposable coveralls, Class P2 half face respirator and washable boots or disposable boot covers. Disposable Class P2 half face dust masks may be used.

All persons entering the work area are to be instructed on the correct fit and wearing of the respirator. No person with a beard shall be permitted to enter an asbestos removal work area.

Disposable items of PPE are not to be taken outside of the asbestos removal work area. When leaving the work area, disposable items of PPE are to be placed into asbestos waste bags for disposal as asbestos contaminated waste.

Reusable items such as boots are to be thoroughly cleaned in the decontamination unit prior to leaving the work area.

The laundering of approved non-disposable protective clothing shall be carried out in accordance with the procedures approved by SafeWork NSW. Waste water from washing of contaminated clothing is to be filtered prior to disposal to the sewer and clothes dryers used for drying clothes or towels are to be filtered through a HEPA filter.

6.3 Decontamination Procedure

For the removal of non-friable asbestos containing materials, a designated decontamination area is to be established at the entry to each of the asbestos removal areas. All persons entering an asbestos removal area are to change into / out of their PPE in the designated decontamination area. Wet shower facilities are not a mandatory requirement for non-friable asbestos removal, however they may be provided by the contractor if they wish to do so.

When leaving the work area, the following decontamination procedure is to be followed:

- Remove any visible asbestos dust/residue from protective clothing using an asbestos vacuum cleaner or wiping down with damp cloths. Warning: do not reuse or resoak damp cloths.
- Carefully remove disposable protective clothing and place into bags, (RPE must still be worn).
- Place cloths into asbestos waste disposal plastic bag (200 µm thick).
- Take disposable coveralls off and place into asbestos waste disposal bag (RPE must still be worn).
- Use damp cloths to wipe down footwear and place cloths into asbestos waste disposal bag.
- Seal all asbestos waste plastic bags with duct tape and place each into a second plastic bag.
- Seal this second plastic bag and label/mark as 'Asbestos Waste'.
- Use damp rags to wipe external surfaces of the asbestos waste disposal bags to remove any dust before it is removed from the asbestos removal work area.
- Remove PPE and double bag, seal with duct tape and mark as 'Asbestos Waste'.
- Remove non-disposable PPE and place in container labelled as containing asbestos.
- Remove disposable RPE and double bag, seal with duct tape and mark as 'Asbestos Waste'.

- Reusable RPE is to be wiped with damp cloth and bag for reuse. Place the damp cloth into a disposable asbestos waste bag.
- Ensure the outside of the bags are decontaminated by using a damp cloth.
- Place the damp cloth into disposable asbestos waste bags.
- Dispose of asbestos waste at the appropriate waste facility.

6.4 Disposal of Asbestos Contaminated Waste

All of the stockpiled fill soil containing visible asbestos containing material debris is to be sampled for laboratory analysis to enable waste classification report(s) to be prepared for the off-site disposal of these soils.

The asbestos contaminated soils are to be loaded into trucks with loading to be undertaken adjacent to each stockpile area.

The asbestos waste is to be transported to the landfill site in covered leak-proof vehicles that have PVC tarpaulins that securely seal and cover the load with the soil to be wetted sufficient to prevent water leakage and dust emissions during transport to the landfill site.

Documentary evidence of the correct disposal of the waste shall be provided. This documentation will include name of authorised tip, weigh bridge docket and registration number of vehicle for every disposal.

All small items of asbestos contaminated waste from the work such as used disposable PPE is to be double bagged in 0.2 mm asbestos waste bags for disposal at a landfill facility licenced by the NSW Environment Protection Authority (NSW EPA).

This waste material is to be placed into the first asbestos waste bag at the work face and sealed. This bag is to then be placed into a second waste bag away from the work face (but within the work area). Each bag is to separately 'goose necked' and sealed with tape. The waste material is to be wetted prior to placement in the bag.

7 AIRBORNE ASBESTOS FIBRE MONITORING

Monitoring for airborne asbestos fibres is to be carried out at all times throughout the duration of the fill soil excavation and loading out work. The monitoring will be undertaken by the LAA engaged for the work.

Monitoring is to be carried out in accordance with the requirements of the National Occupational Health and Safety Commission (NOHSC) Code of Practice for the Safe Removal of Asbestos, particularly the 'Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres' 2nd edition [NOHSC:3003(2005)]. Analysis of the air monitoring filters is to be carried out by a NATA accredited laboratory.

Air monitors are to be placed in the decontamination / change area and on the (temporary) fencing surrounding the asbestos removal work area.

The daily reports of the results of the air monitoring will be forwarded to the client. A copy should be held on site by the asbestos removal contractor. A site plan showing the stages of work and the locations of the air monitoring pumps are to be included with each daily report of the air monitoring results.

The NOHSC recommended maximum exposure level for airborne asbestos fibres, measured as a time weighted average over an 8 hour work shift, is 0.1 fibres per millilitre of air (0.1 fibres/ml).

The NOHSC Code of Practice for the Safe Removal of Asbestos details control levels for airborne asbestos fibre concentrations that are to be observed during the work. These control levels are as follows:

<i>Airborne fibre concentration (fibres/ml)</i>	<i>Control Measure</i>
<0.01	Continue work using existing asbestos dust control measures
≥0.01	Continue work and review asbestos dust control measures
≥0.02	Stop work, identify cause of dust emissions and revise dust control measures.

8 VISUAL CLEARANCE INSPECTIONS AND VALIDATION SAMPLING

At the completion of the excavation and loading out of the stockpiled asbestos contaminated fill soil, a visual inspection is to be undertaken to verify that the remaining exposed soil surface is free of visible asbestos containing material. The clearance inspection is to be carried out in accordance with the requirements of Section 3.10 of the How to Safely Remove Asbestos Code of Practice issued by Safe Work Australia.

The visual inspection of the excavation area is to be undertaken by walking over the exposed soil in a systematic manner at 2 metre intervals in a north / south direction. A second walkover inspection at 2 metre intervals is then to be undertaken in an east / west direction.

Validation soil samples are to be taken from each stockpile area with one sample collected for each 50 square metre area (or part thereof) with a minimum of three samples per stockpile area. These samples are to be taken for laboratory analysis to confirm that there is no remaining asbestos contamination in each stockpile area / excavation area from where the asbestos contaminated fill soil was removed.

The soil samples are to be 500ml minimum each and are to be analysed in accordance with the methodology detailed in the NSW EPA endorsed *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPC, 2013).

For clearance, the validation soil sample must have asbestos concentrations below the following adopted health screening levels:

Form of Asbestos	Health Screening Level (w/w)
Bonded ACM (>7mm)	0.01%
Fibrous Asbestos (FA)	0.001%
Asbestos Fines (AF)	0.001%
Surface Asbestos Containing Material (ACM) (0-0.1 m BGL)	No visible asbestos material present

A clearance report detailing the findings of the visual inspection and soil sample results is to be compiled and this report is to confirm that the asbestos contaminated fill soil excavation areas may be accessed by persons for construction work to be carried out without the use of asbestos PPE.

Thank you

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