

Construction Environmental Management Plan

Picton High School Picton High School

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1 Introduction

1.1 Background

To accommodate for growth in the Wollondilly Shire, Wollondilly Shire Council developed the Picton High School Masterplan. The plan involves a major upgrade (the Project) to Picton High School (PHS) to facilitate an additional 1,580 students for the school.

Key features of the Project are:

- Necessary early works including demolition of Buildings A-H, L and Q and associated excavation
- Construction of a two to three storey building located along the central spine of the site connecting with existing retained buildings
- Retention, repurposing or refurbishment of Buildings I, J, K, M and N
- Reconfiguration of car and bus drop off / pick up areas, including a new access point from Wonga Road and internal access road
- Increasing floor space incorporating permanent teaching spaces and core facilities
- Boundary adjustments
- Removal of 92 trees
- Associated landscaping works throughout the site.

1.2 Purpose of this CEMP

The Construction Environmental Management Plan (CEMP) and associated issue-specific, Environmental Management Sub-Plans have been prepared to outline and describe how the Principal Contractor will, during the construction of the Project, implement safeguards and management measures (SMM) to comply with:

- Response to Submissions Table (Ethos Urban, 2018)
- SSD 8640, determined on 20 December 2018
- AS/NZS ISO 14001
- All applicable legislation.

This CEMP and the associated Environmental Management Sub-Plans:

- Describe the Project
- Provides specific site-based safeguards and management measures for specific aspects of the demolition and construction stage, as required by Condition B15 of the Development Consent for SSD 8640:
 - Dust and odour
 - Lighting
 - Community consultation and community feedback management
 - Stormwater control and discharge
 - Sediment and erosion control
 - Groundwater quality
 - Construction traffic and pedestrian management
 - Noise and vibration
 - Waste management (construction and demolition waste only)
 - Aboriginal cultural heritage
- Provides specific mechanisms for compliance with applicable policies, approvals, licenses, permits, consultation agreements and legislation
- Describe the environmental management related roles and responsibilities of personnel
- States objectives and targets for issues that are important to the environmental performance of the Project
- Outlines a monitoring regime to check the adequacy of controls are they are implemented during construction.

The main body of this CEMP is required to be read and implemented *in conjunction with each of the attached Environmental Management Sub-Plans*, as referenced in Table 1-1.

This CEMP has been developed by SMEC to be used by the Principal Contractor. The CEMP should be revised and updated in accordance with the changing site conditions. SMEC accept no liability for the environmental procedures and processes carried out on site.

Table 1-1 CEMP Requirements

DEVELOPMENT CONSENT CONDITION/SMM	REQUIREMENT	SUB-PLAN REFERENCE
Transport and Accessibility		
	Restrict vehicles to left-in from Argyle Street;	Construction Traffic and Pedestrian Management
	Vehicles exiting site to Argyle street to use bus drop-off zone and, if turning right onto Argyle Street, to follow existing arrangements for buses turning right onto Argyle Street;	
	The existing internal driveway for school buses shall be retained for the movement of heavy vehicles during the construction phase; and	
	Vehicle Movement Plans (VMPs) including site layout for each stage of works to be developed by contractor.	
Aboriginal Heritage		
	Consultation with the registered Aboriginal stakeholders should continue. Stakeholders have been given the opportunity to comment on the recommendations of this report and these comments are included in this report;	Aboriginal Cultural Heritage Management Sub-Plan (DRAFT) Archaeological Work Method Statement Letter of consent to commence demolition of existing buildings
	An Aboriginal Cultural Heritage Management Plan should be devised as a final document for the study area as State Significant Development (SSD) status (SSD #8640), in order to manage any Aboriginal archaeological and cultural constraints that may arise;	
	Archaeological test excavation in accordance with Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010) revealed no Aboriginal archaeological objects or deposits: the development as shown (Figures 4.1 – 4.6) should be allowed to ‘proceed with caution’;	
	After this and before any ground disturbance takes place all development staff, contractors and workers should be briefed prior to works commencing on site, as to the status of the area and their responsibilities in ensuring preservation of the said area. They should also be informed of their responsibilities regarding any Indigenous archaeological deposits and/or objects that may be located during the following development;	

DEVELOPMENT CONSENT CONDITION/SMM	REQUIREMENT	SUB-PLAN REFERENCE
	<p>If any Aboriginal archaeological deposits and/or objects are located during the development, then the following should take place;</p> <ul style="list-style-type: none"> All work is to cease in the immediate vicinity of the deposits and/or objects The area is to be demarcated OEH, a qualified archaeologist and the participating RAPs are to be notified. 	
	<p>Should any human remains be located during the following development;</p> <ul style="list-style-type: none"> All excavation in the immediate vicinity of any objects of deposits shall cease immediately; The NSW police and NSW Environment & Heritage as soon as possible; Once it has been established that the human remains are Aboriginal ancestral remains, OEH and the relevant Registered Aboriginal Parties will identify the appropriate course of action. 	
Noise and Vibration		
	<p>Noise generating construction activities should be undertaken in accordance with the Interim Construction Noise Guideline (DECC, 2009). The standard hours for construction work should be in accordance with the Guideline:</p> <ul style="list-style-type: none"> 7:00 am – 6:00 pm Monday to Friday 8:00 am – 1:00 pm Saturdays No work on Sundays or Public Holidays. 	Construction Noise and Vibration Management Sub-Plan
	<p>Work outside normal hours should only comprise:</p> <ul style="list-style-type: none"> The delivery of materials outside normal hours requested by police or other authorities for safety reasons Emergency work to avoid the loss of lives and/or property 	
	<p>Residences within 500 m of the site should be notified as to the timing and duration of the construction works and provided with a contact phone number for any complaints or concerns during the construction period.</p>	
	<p>Inductions for the work crew would include the specific noise issues and mitigation measures required for the site. The induction would include:</p> <ul style="list-style-type: none"> All relevant standard noise mitigation measures 	

DEVELOPMENT CONSENT CONDITION/SMM	REQUIREMENT	SUB-PLAN REFERENCE
	<ul style="list-style-type: none"> • Relevant licence and approval conditions • Permissible hours of work • Location of any sensitive receivers that may exceed the construction noise management level • Construction employee parking areas • Designated loading/ unloading areas and procedures • Site opening/closing times (including deliveries) • Behavioural practices that minimise noise: • Avoiding dropping materials from height and avoiding metal to metal contact on material. 	
	The distance between plant and equipment and any sensitive receiver should be maximised where practicable.	
	Vehicles, plant and equipment would be regularly maintained and kept in good operating condition. Machines found to produce excessive noise should be removed from site or stood down until repairs or modifications can be made.	
	Plant should be turned off when not in use. For example, trucks should not be left idling if not operational.	
	<p>For excavators, jackhammers, angle grinders, electric saws and bulldozers where prolonged use is necessary, this equipment/machinery could be moved to another part of the site to offer the receiver closest to the plant some respite. The Construction Noise and Vibration Report recommends commencing all noisy excavation works within 40 meters of a residential property boundary on site only after 8:am, providing a 1-hour respite period during the morning period from the 7am standard hours of construction.</p> <p>All surrounding receivers will be notified of the duration and extent of the works proposed during the excavation stage via letterbox drops, with a detailed engagement plan and contact information for all relevant personnel on site. SINSW have a Community Liaison Team especially dedicated to addressing complains and notifying receivers.</p>	
	All construction traffic, including loading and unloading operations are proposed to occur via an access gate via Argyle Street.	

DEVELOPMENT CONSENT CONDITION/SMM	REQUIREMENT	SUB-PLAN REFERENCE
	<ul style="list-style-type: none"> Trucks and bobcats to use a non-tonal reversing beacon (subject to OH&S requirements) to minimise potential disturbance of neighbours. Avoid careless dropping construction materials into empty trucks Trucks and concrete trucks must turn off their engines when on site to reduce impacts on adjacent land use (unless truck engine needs to remain on, for example during concrete pumping) Where concrete pumps are located unscreened and within 40 metres of a residence, pumping should not commence prior to 8am. 	
	<p>In the event of complaint, noise management techniques identified in the Construction Noise and Vibration Management Plan should be employed to minimise the level of noise impact. This may include community consultation and scheduling of loud construction processes. SINSW have a Community Liaison Team dedicated to addressing complains and notifying receivers.</p>	
Sediment, erosion and dust controls		
	Minimise extent and duration of construction disturbance;	Construction Soil and Water Management Sub-Plan Project Environmental Management Plan
	Ensure / separation of offsite water from site water;	
	Use erosion control measures to prevent offsite impacts;	
	Inspect and maintain erosion control measures; and	
	Nominate a suitably qualified environmental representative on site to complete self-audits and monitor Soil and Water Management Plans and ensure ongoing monitoring, maintenance and prevention of pollution.	
	A progressive erosion and sediment control plan is to be prepared for the works and developed progressively through the construction phase.	
	In locations where proposed post-redevelopment water quality basins are planned outside the demolition footprint, demolition phase sediment basins or other sediment control elements may be located in these places during demolition phase, subject to designs being compatible with subsequent post-redevelopment water treatment requirements.	

DEVELOPMENT CONSENT CONDITION/SMM	REQUIREMENT	SUB-PLAN REFERENCE
	Sizing of detailed demolition sub-catchments may need to be further defined once detailed demolition staging planning is underway. Provision for potentially larger up gradient stormwater catchments may need to be considered during higher erosion risk activities, such as redirecting live stormwater assists, changes to pavement drainage, or when bridge deck surface water is connected site water.	
Contamination		
	Given that a bonded asbestos-containing material (ACM) fragment was observed near the northern site boundary, Douglas Partners recommends that the northern site boundary area and the balance of the site is subject to a detailed site inspection after demolition of existing structures is completed.	Project Environmental Management Plan
	Once the demountable buildings have been removed, a detailed site walkover and targeted sampling (if deemed to be required) should be completed across the footprint areas.	
Waste		
	All recyclable or non-recyclable wastes are to be suitably stockpiled in appropriate locations onsite and contractors commissioned to regularly remove the waste to approved disposal or recycling facilities.	Project Environmental Management Plan
	Spoil, topsoil and mulch are to be stockpiled onsite in allocated areas, where appropriate, and mitigation measures for dust control and surface water management will be implemented, including the Stockpile Management Protocol	
	Liquid wastes are to be stored in appropriate containers in bunded areas until transported offsite. Bunded areas will have the capacity to hold 110 per cent of the liquid waste volume for bulk storage or 120 per cent of the volume of the largest container for smaller packaged storage	
	Hazardous waste will be managed by appropriately qualified and licensed contractors, in accordance with the requirements of the Environmentally Hazardous Chemicals Act 1985, EPA waste disposal guidelines.	
	<p>The NSW Governments Waste Management Hierarchy of “avoid-reduce-reuse- recycle- dispose” would be followed as the framework of waste management throughout the project.</p> <p>The reuse and/or recycling of waste materials generated on site shall be maximised as far as practicable, to minimise the need for treatment or disposal of those materials off site.</p>	

DEVELOPMENT CONSENT CONDITION/SMM	REQUIREMENT	SUB-PLAN REFERENCE
	Relevant waste management measures from this WMP would be included in relevant Environmental Work Method Statements to be developed prior to the commencement of specific activities	
	All staff and subcontractors would undergo a site induction and ongoing toolbox talks that will detail waste minimisation and reuse management measures, including the requirements of the waste management hierarchy.	
	Sediment recovered from erosion and sediment control devices would be reused on site as general fill material or it will be incorporated within landscaping materials where possible and stabilised.	
	<p>All waste material generated on-site (including chemical, fuel and lubricant containers, and solid and liquid waste) would be classified and disposed of in accordance with the Protection of the Environment Operations Act 1997 and Waste Classification Guidelines Part 1: Classifying Waste (DECCW, 2009), or any superseding document.</p> <p>Waste generated outside the site shall not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by a licence or waste exemption under the Protection of the Environment Operations Act 1997, if such a licence is required in relation to that waste</p>	
	<p>Waste minimisation and management measures would be developed based on the principles in the Waste Avoidance and Resource Recovery Act 2001, the NSW Government's Waste Reduction and Purchasing Policy, and waste exemptions including:</p> <ul style="list-style-type: none"> • Excavated Natural Material Exemption (EPA, 2014). • Excavated Public Road Material Exemption (EPA, 2014) • Raw Mulch Exemption (EPA, 2014) • Reclaimed Asphalt Pavement Exemption (EPA, 2014) • Recovered Aggregate Exemption (EPA, 2014) • Stormwater Exemption (EPA, 2014) <p>Recycled material would be considered for use in all aspects of the project where feasible and reasonable and measures will seek to avoid, minimise, re-use, recycle, treat or dispose of waste streams during demolition and address transport and disposal arrangements.</p>	

DEVELOPMENT CONSENT CONDITION/SMM	REQUIREMENT	SUB-PLAN REFERENCE
	Regular visual inspections would be conducted to ensure that work sites are kept tidy and to identify opportunities for reuse and recycling.	
	<p>Water captured in excavations would be required to be either:</p> <ul style="list-style-type: none"> • Managed in accordance with the demolition Soil and Water Management Plan • Transferred to a licensed sediment basin, treated and discharged in accordance with any licence conditions that apply to the discharge of water, or • Re-used for demolition water or dust suppression. 	
	Topsoil (weed free) would be stockpiled in accordance with RMS criteria in allocated areas and reused for landscaping.	
	Any contaminated waste would be handled, separated, contained, managed and disposed of to prevent migration and further contamination	
	A waste register would be maintained, detailing types of waste collected, amounts, date/time and details of disposal.	
	Waste would be managed and disposed of in accordance with the PoEO Act and the WRAPP. Wastes that are unable to be reused or recycled would be disposed of offsite at a licensed waste management facility, or premises lawfully permitted to accept the materials following classification.	
	Oils and other hazardous liquids would be labelled and stored in a sealed container within a bunded area. Material collected from within bunded areas will be disposed of offsite at an appropriately licenced waste facility	
	The relevant licences of waste facilities utilised for the disposal of project waste would be obtained (on a regular basis if necessary) to ensure they are legally able to accept that waste.	
	The disposal of chemical, fuel and lubricant containers, solid and liquid wastes must be in accordance with the requirements of the local Council or the EPA.	
	All trucks transporting wastes off site would be appropriately licensed to carry the materials to appropriately licensed waste facilities	

DEVELOPMENT CONSENT CONDITION/SMM	REQUIREMENT	SUB-PLAN REFERENCE
	Procurement of materials will be planned and managed to avoid the over-ordering of products and minimise excess packaging is to be carried out.	
	Cleared vegetation will be reused or recycled to the greatest extent practicable for example: <ul style="list-style-type: none"> • Mulching of vegetation for use in landscaping • Spreading of vegetation for fauna habitat in suitable areas where agreements are made for this (e.g. mulch, small timber, hollow logs) • Donation of other timber to community or environmental groups 	
	Weeds will be managed, handled and disposed of in accordance to The Weed Management Strategy (refer to the FFMP). If disposal is appropriate, the weed material will be transferred to a licensed waste facility.	
	Concrete, asphalt, bricks/masonry and steel products are to be reused on site where possible. Alternatively, they will be sent off-site for recycling.	
	All trucks transporting wastes off site will be appropriately licensed to carry the materials to appropriately licensed waste facilities.	
Bushfire		
	Self-assessment for compliance with AS 3959-2009.	Bushfire Risk Mitigation Memorandum

This CEMP is the overarching document in the Environment Management System (EMS) for the Project that includes a number of management documents. It is applicable to all staff and sub-contractors associated with the construction of the Project. The EMS is further outlined in Section 2 of this CEMP.

1.3 Consultation

Consultation was undertaken during development of the EIS with Wollondilly Council, RMS, Picton Bus Lines, Picton High School and the general public. The primary objective of consultation was to keep stakeholders involved and informed during the development of the Project.

1.4 Project program

Majority of the construction activities are expected to occur over 18 months and will include the activities outlined in Table 1-2.

During stage 1 works, students and staff will continue to access the site via Argyle Street until the roundabout at the end of Wonga Road is completed, at which time the entry to the Temporary School will transfer to Wonga Road, separating school and construction movements for the majority of the duration of construction.

Table 1-2 Project program

CONSTRUCTION STAGES	CONSTRUCTION WORKS	DURATION
Stage 1 – Removal of asbestos	Removal of asbestos from existing buildings	April to May 2019
Stage 2 – Demolition	Consists of demolition of some of the existing single storey buildings, civil works and earthworks levelling to accommodate prefabricated buildings and associated services, and the delivery of classroom de-mountables.	May to June 2019
Stage 3 – Construction	Construction of new buildings including services, and the construction of the surrounding soft and hard landscaping works.	July to August 2020
Stage 4 – Finalisation	Removal of Temporary School and landscaping	January to May 2021

2 Environmental management system overview

2.1 Environmental management system

2.1.1 Environmental policy

Taylor recognises the challenges facing the construction industry and community at large. It is committed to implementing effective environmental practices to promote sustainability across all aspects of its operations. The Taylor Environmental Management System is certified to AS/NZS ISO 14001:2004. Taylor's commitment to meeting industry standards for environmental performances is provided in their policy on environmental management as included in Appendix B.

2.1.2 CEMP

The CEMP is the overarching management plan for a suite of environmental management documents for the Project and presents a set of issue-specific Environmental Management Sub-Plans.

The CEMP is consistent with:

- Guideline for the preparation of Environmental Management Plans (DIPNR, 2004)
- ISO14001:2015, 'Environmental Management Systems - requirements with guidance for use'.

The supporting appendices prepared under the CEMP comprise:

- Appendix A Legal framework
- Appendix B Environmental policy
- Appendix C Project Environmental Management Plan
- Appendix D Unexpected finds protocol for contamination and associated communications procedure

The issue-specific Environmental Management Sub-Plans prepared for the purposes of the CEMP comprise

- Appendix E Traffic and Pedestrian Management Sub-Plan
- Appendix F Noise and Vibration Management Sub-Plan
- Appendix G Construction Soil and Water Management Sub-Plan
- Appendix H Aboriginal Cultural Heritage Management Sub-Plan
- Appendix I Bushfire Risk Mitigation Memorandum

2.1.3 Interaction with other plans

The CEMP will provide continuity between a range of documents and specific requirements to ensure that the works are carried out in accordance with the EMS, approvals and specifications. The CEMP sits underneath the Project Management Plan which is the overarching plan for the Project.

3 The Construction Environmental Management Plan

3.1 Preparation of the CEMP

Construction will not commence until written acceptance of the CEMP has been approved by the Certifying Authority and a copy submitted to the Planning Secretary.

This CEMP will be available to all personnel and sub-contractors. Confidential information, which may include the location of threatened species, Aboriginal objects or places and personal contact details, will be removed from all documents made available to the public.

3.1.1 Sub-plans and strategies

A number of environmental management sub plans support the CEMP. These documents are prepared to identify requirements and processes applicable to specific impacts or aspects of the activities described in Chapter 2.

The issue specific environmental management plans prepared under the CEMP comprise

- Construction Traffic and Pedestrian Management
- Construction Noise and Vibration Management Sub-Plan
- Waste Management Plan
- Construction Soil and Water Management Sub-Plan
- Aboriginal Cultural Heritage Management Sub-Plan (Draft)

3.2 Planning

3.2.1 Regulatory requirements and compliance

3.2.1.1 Legislation

A register of legal and other requirements for the Project is contained in Appendix A1. This register will be reviewed at regular intervals, such as during management reviews, and updated with any applicable changes. Any changes made to the legal requirements register will be communicated to the wider project team, including subcontractors where necessary through toolbox talks, specific training and other methods detailed in Section 4 of this CEMP.

3.2.1.2 Approvals, permits and licences

Appendix A1 contains a register of all relevant environmental approvals, permits and licences required for the Project. The register will be maintained by the Contractor's Environmental Manager (EM) and reviewed prior to the commencement construction and/or stages of construction, and at regular intervals during construction and at least annually as part of the management review. The following approvals and licenses are required for the Project.

3.2.1.3 Compliance tracking

The conditions of the EIS development consent and the final safeguards and management measures (as identified in the EIS Submission Report) are listed in Appendix A1 – Legal Requirements and Compliance Tracking together with a reference to where each requirement is addressed by this CEMP or other Project documentation.

3.2.2 Environmental work method statements and Safe Work Method Statements

Environmental Work Method Statements (EWMS) or Safe Work Method Statement (SWMS) will be prepared for high risk activities including those outlined in the EIS and Submissions Report and in accordance with the Project Management Plan (PMP). The EWMS will incorporate relevant mitigation measures and controls, including those from issue specific management plans. They also identify key procedures to be used concurrently with the EWMS. The EWMS are specifically designed to communicate requirements, actions, processes and controls to construction personnel using plans, diagrams and simply written instructions.

EWMS will be prepared by the Principal Contractor prior to the commencement of the construction activities to which they apply, and throughout construction in consultation with relevant members of the Contractor's Project team. The EWMS will be approved by the Environmental Manager.

The EWMS will include at least the following elements:

- Description of the work activity, including any plant and equipment to be used

- Outline of the sequence of tasks for the activity, including interfaces with other construction activities
- Identification of any environmental and/or socially sensitive areas, sites or places
- Identification of potential environmental risks/impacts due to the work activity
- Mitigation measures to reduce the identified environmental risk, including assigned responsibilities to site management personnel
- Process for assessing the performance of the implemented mitigation measures.

All construction personnel and sub-contractors undertaking a task governed by an EWMS would participate in training on the EWMS as outlined in Section 4 of this CEMP and will acknowledge that they have read and understood their obligations by signing an attendance record prior to commencing work.

As outlined in Section 5.3 of this CEMP, regular monitoring, inspections and auditing of compliance with the EWMS will be undertaken to ensure that all controls are being followed and that any non-conformances are recorded, and corrective actions implemented.

3.2.3 Progressive erosion and sediment control plans

Progressive Erosion and Sediment Control Plans (PESCPs) are used to identify the locations of erosion and sediment controls within the Project site. They are produced for construction stages from initial vegetation clearing to rehabilitation, when erosion and sediment controls are no longer required and are removed. PESCPs will be developed and implemented prior to commencing activities at all work areas where there is a risk of erosion and sediment loss. At minimum the PESCPs will include the following:

- Measures regarding stormwater control and discharge
- Measures to ensure that sediment and other materials are not tracked into the roadway by vehicles leaving the site.

3.2.4 Environmental procedures

The Project environmental management system procedures, forms and other documents provide instructions and records related to both environmental and non-environmental activities throughout the Project. A list of forms and checklists (subject to change) to be used to monitor environmental performance is provided in Table 3-1.

Project specific procedures will be developed in accordance with the requirements for the Project. Where applicable, existing contractor procedures and work instructions will be applied or amended for use on the Project. These procedures are listed within the relevant section of this CEMP.

Table 3-1 Forms and Checklists

RECORD TYPE	NOTES
Environmental Incident Report Form	Used on an as-needs basis when an environmental incident occurs
Environmental Site Inspection Checklist	Used at least once a week during environmental site inspections
Water discharge permit	Used prior to the transfer of, or discharge of water from sediment retention basins, excavations or holding tanks
Noise Monitoring Record Sheet	If required, used to record noise levels over a 15-minute monitoring duration for construction activities to ensure they comply with noise criteria
Monthly Register for Waste Materials	Used monthly to track waste materials used on site including hazardous material (i.e. asbestos)
Equipment Maintenance and Calibration Record Register	Used on an as-needs basis when equipment is maintained or calibrated

RECORD TYPE	NOTES
Water Monitoring Record Register	Used after water discharge to record water quality and approvals.
Health, Safety and Environmental Report	Used monthly to report on environmental performance
Environmental Incident Register	Used on an as-needs basis when an environmental incident occurs.
Emergency Response Exercise Checklist	Used where required as per the frequency set out in the Emergency Response Plan.
Environment Design Review Checklist	Used by the design team to ensure all environmental design requirements are complied with.
Subcontractor Energy Usage Report (if required)	Used monthly to report on subcontractor usage
Sub-contractor performance review	Used to evaluate the overall performance on each sub-contractor, including environmental performance.
An unexpected finds protocol for Aboriginal and Non-Aboriginal heritage and associated communications procedure	Used on as needs basis
An unexpected finds protocol for contamination and associated communications procedure	Used on as needs basis
Waste classification (for materials to be removed) and validation (for materials to remain) be undertaken to confirm the contamination status in these areas of the site;	Used on as needs basis when material is to be disposed off-site

3.3 Roles and Responsibilities

The roles and responsibilities outlined in Table 3-2 are critical in all aspects of environmental management on the Project, and the implementation of the CEMP and various sub-plans. Where there are roles and responsibilities that are specific to either a subject matter (subject matter expert), or an activity on the Project, these roles and responsibilities will be outlined in the specific CEMP Sub-plan.

Table 3-2 Roles and responsibilities

ROLE	RESPONSIBILITY
Project Manager	<ul style="list-style-type: none"> • Ensure all work complies with relevant regulatory and Project requirements • Ensure the requirements of this CEMP are fully implemented, and in particular, that environmental requirements are not secondary to other construction requirements • Endorse and support the environmental policy attached in Appendix A3 • Liaise with Roads and Maritime and government authorities as required • Participate and provide guidance in the regular review of this CEMP and supporting documentation • Provide adequate resources (personnel, financial and technological) to ensure effective development, implementation and maintenance of this CEMP

ROLE	RESPONSIBILITY
	<ul style="list-style-type: none"> • Ensure that all personnel receive appropriate induction training, including details of the environmental and community requirements • Ensure that complaints are investigated to ensure effective resolution • Stop work immediately if an unacceptable impact on the environment is likely to occur.
Construction Manager	<ul style="list-style-type: none"> • Plan construction work in a manner that avoids or minimises impact to environment • Ensure the requirements of this CEMP are fully implemented • Ensure construction personnel manage construction work in accordance with statutory and approval requirements • Support the Environmental Manager in achieving the project environmental objectives • Ensure environmental management procedures and protection measures are implemented • Ensure all Project personnel attend an induction prior to commencing work • Liaise with Roads and Maritime and other government authorities as required • Stop work immediately if an unacceptable impact on the environment is likely to occur.
General Superintendent	<ul style="list-style-type: none"> • Communicate with all personnel and sub-contractors regarding compliance with the CEMP and site-specific environmental issues • Ensure all site workers attend an environmental induction prior to the commencement of work • Co-ordinate the implementation of the CEMP • Co-ordinate the implementation and maintenance of pollution control measures • Identify resources required for implementation of the CEMP • Support the Environmental Manager in achieving the project environmental objectives, including on ground implementation of the environmental documents such as erosion and sediment control plans. • Report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the Environmental Manager and the Environmental Coordinator • Co-ordinate action in emergency situations and allocate required resources • Stop activities where there is an actual or immediate risk of harm to the environment and advise the Construction Manager and Environmental Manager.
Project and Site Engineers	<ul style="list-style-type: none"> • Provide input into the preparation of environmental planning documents as required • Ensure that instructions are issued, and adequate information provided to employees that relate to environmental risks on-site • Ensure that the work is carried out in accordance with the requirements of the CEMP and supporting documentation, including the implementation of all environmental controls • Identify any environmental risks • Identify resource needs for implementation of CEMP requirements and related documents. • Ensure that complaints are investigated to ensure effective resolution • Take action in the event of an emergency and allocate the required resources to minimise the environmental impact

ROLE	RESPONSIBILITY
	<ul style="list-style-type: none"> Report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the Superintendent and Environmental Manager.
<p>Wider Project Team (including sub-contractors)</p>	<ul style="list-style-type: none"> Participate in the mandatory Project/site induction program. Report any environmental incidents to the foreman immediately or as soon as practicable if reasonable steps can be adopted to control the incident. Undertake remedial action as required to ensure environmental controls are maintained in good working order. Stop activities where there is an actual or immediate risk of harm to the environment and advise the Project Manager, Construction Manager, Superintendent or Environmental Manager.
<p>Principals Environment Representative or Manager</p>	<ul style="list-style-type: none"> Overall responsibility for the management of environmental aspects of the Project Development, implementation, monitoring and updating of the CEMP and issue specific plans Report to Project Manager on the performance and implementation of the CEMP Ensure management reviews of the CEMP are undertaken annually, documented and actions implemented Ensure environmental risks of the Project are identified and appropriate mitigation measures implemented Identify where environmental measures are not meeting the set targets and where improvement can be achieved Ensure environmental protocols are in place and managed Ensure environmental compliance Obtain and update all environmental licences, approvals and permits as required Lead liaison with approval authorities Manage environmental document control, reporting, inductions and training Manage environmental reporting within the Project team Prepare reports on a monthly basis outlining the Project work undertaken, achievements and areas where improvements were made Oversee site environmental monitoring, inspections and internal audits manage all subcontractors and consultants with regards to environmental matters, including assessing their environmental capabilities and environmental documents Prepare and/or distribute environment awareness notes Review and approve PESCPs Develop and facilitate induction, toolbox talks and other training programs regarding Environmental requirements for all site personnel Notify relevant authorities in the event of an environmental incident and manage close-out of these Authorised contact person for communications with the Environment Protection Authority (EPA) on environmental matters. Stop activities where there is actual or potential risk of harm to the environment or to prevent an environmental non-conformance and advise the project director, construction manager and superintendent Assist the community relations manager to resolve environment-related complaints. Notification to the relevant parties of any environmental incidents

ROLE	RESPONSIBILITY
	<ul style="list-style-type: none"> • Providing monthly reports to the Principal of your environmental performance. • Specific authority to stop work on any activity where the EM deems it necessary to prevent environmental nonconformities.
Contractors Environmental Coordinator	<ul style="list-style-type: none"> • Assist in developing the CEMP (including any future revisions) • Develop PESCP in consultation with the Superintendent, Project Engineers, Foreman and other relevant site personnel, as required • Undertake site inspections, carry out monitoring activities and complete site checklists • Ensure monitoring records are appropriately maintained, reviewed and any noncompliance issues addressed • Manage the day-to-day environmental elements of construction • Record and provide written reports of non-conformances with the CEMP or corrective actions required to the Environmental Manager. This may include the need to implement additional measures or revise existing measures • Assist in identifying environmental risks • Advise the Environmental Manager and Construction Manager of the need to stop work if an there is the potential for an unacceptable impact on the environment to occur • Advise the Construction Manager or site construction staff to take reasonable steps to avoid or minimise impacts • Provide reports to the Environmental Manager on any major issues resulting from the Project • Advise site staff on issues concerning Project environmental matters • Assist in developing training programs regarding environmental requirements and deliver where required, including delivery of the environmental component of toolbox talks • Stop activities where there is an actual or immediate risk of harm to the environment and advise the Project Manager, Construction Manager, Superintendent and Environmental Manager.
Supervisors	<ul style="list-style-type: none"> • Undertake any environmental duties as defined by the superintendent or Project/site engineer. • Control field works and implement/maintain effective environmental controls. • Where required, undertake environmental risk assessment of works prior to commencement • Ensure site activities comply with environmental documents such as Sensitive Area Plans, EWMS and relevant records are kept. • Ensure all site workers are site inducted prior to commencement of works. • Attend to any spills or environmental incidents that may occur on-site. • Report any activity that has resulted, or has the potential to result, in an environmental incident immediately to the Superintendent. • Stop activities where there is an actual or immediate risk of harm to the environment and advise the Project Manager, Construction Manager, Superintendent or Environmental Manager.

3.4 Sub-contractor management

Sub-contractor environmental requirements and responsibilities are to be specified in the contract documentation. All sub-contractors are required to work in accordance with the approved CEMP. To ensure compliance and detect any non-conformance, subcontractors will be subject to:

- Environmental inspections of their work areas with key subcontractor representatives and site supervisors

- Environmental audits undertaken by the project Environmental Manager or Coordinator.

All sub-contractors are required to attend Project and/or site inductions where the requirements and obligations of the CEMP are communicated. A record of all sub-contractors inducted will be maintained as part of the Project induction and training register.

A standard monitoring form will be developed that will be used to assess:

- The sub-contractor's general work practices
- The effectiveness of the sub-contractor's environmental protection measures
- The sub-contractor's compliance with the requirements of this CEMP
- The maintenance of environmental measures

Examples of poor performance and behaviour include the ongoing failure to close out actions following Environmental Inspections, absent controls in the work area (such as Erosion and Sediment controls) or non-compliance with approval issues such as working hours and/or plant/equipment parked under drip lines of trees or outside the boundary. To manage poor performance and behaviour several mechanisms are available for use when a sub-contractor continually fails to meet their contractual obligation such as:

- Provide the ongoing support and guidance to teams in the field through the Environmental team
- Re-induct individuals/teams where required and provide specific training, such as Erosion and Sediment Control
- Involvement of senior management from the Project and Subcontractor to discuss poor performance at a higher level
- Disciplinary action if required.

4 Competence, training and awareness

To ensure that this CEMP is effectively implemented, each level of management is responsible for ensuring that all personnel reporting to them are aware of the requirements of this CEMP. The Environmental Manager will coordinate the environmental training in conjunction with other training and development activities (e.g. safety).

4.1 Environmental induction

All personnel (including sub-contractors) are required to attend a compulsory site induction that includes an environmental component prior to commencement on-site. This is done to ensure all personnel involved in the Project are aware of the requirements of the CEMP and to ensure the implementation of the EIS, Submission Reports' safeguards and management measures, and project approval requirements.

All personnel involved in the project are required to undergo either the project induction or a visitor's induction. All intermittent staff will be advised as to the frequency and general days of induction by their site contact or supervisor whilst onsite, to ensure that they can book themselves into an induction via contact with the Safety team at their earliest opportunity.

Short-term visitors to site undertaking inspections / entering the site (such as regulators) will be required to undertake a visitor's induction and be accompanied by inducted personnel at all times. Temporary visitors to site for purposes such as deliveries will be required to be accompanied by inducted personnel at all times.

The Environmental Manager (or delegate) will conduct the environmental component of the site inductions. The environmental component must cover all elements of the CEMP and would include as a minimum:

- Relevant details of the CEMP including purpose and objectives
- Conditions of environmental licences, permits and approvals
- Potential environmental emergencies on Site and the emergency response procedures
- Reporting and notification requirements for pollution and other environmental incidents
- High risk activities and associated environmental safeguards and EWMS
- Working in or near environmentally sensitive areas including heritage sites
- Site specific environmental management requirements and responsibilities
- Surrounding sensitive land uses including aquatic activities
- Mitigation measures for the control of environmental issues
- Incident response (including fire) and reporting requirements.

A record of all environment inductions will be maintained in an Induction Register and kept on-site. The Environmental Manager may authorise amendments to the induction where required to address Project modifications, legislative changes or amendments to this CEMP or related documentation.

4.1.1 Toolbox talks, training and awareness

Toolbox talks will be used to raise awareness and educate personnel on construction related environmental issues. The toolbox talks are used to ensure environmental awareness continues throughout construction. Toolbox talks will be tailored to specific environmental issues relevant to upcoming work including (but not limited to):

- Erosion and sedimentation control
- Hours of work
- Emergency and spill response
- Aboriginal and non-Aboriginal heritage sites and unexpected finds procedure
- Threatened species and ecological communities
- Clearing controls and vegetation protection
- Weed management
- Weather conditions
- Environmental alerts
- Water quality issues

- Communication of recent regulator enforcement actions/parent company environmental alerts and lessons learnt from other projects that may be relevant to this project
- Complaint management procedures
- Presence of aquatic fauna and response
- EWMS (for relevant personnel).

Toolbox talk attendance is mandatory and attendees of toolbox talks are required to sign an attendance form and the records maintained in a Training Register.

Targeted environmental awareness training will be provided to individuals or groups of workers with a specific authority or responsibility for environmental management or those undertaking an activity with a high risk of environmental impact. Topics covered may include those detailed above, or others deemed necessary in the lead up to or during construction. The Environmental Manager will review and approve the training program and monitor implementation. Awareness notes, in the form of posters, booklets, or similar will be developed and distributed to the Superintendent, Project engineers, the Foreman and others with a responsibility for managing specific work locations or activities. This documentation may also be distributed to the broader workforce at daily pre-start meetings (see Section 4.1.2) or made available in project offices / break facilities.

4.1.2 Daily pre-start meetings

Daily pre-start meetings will be used to inform the workforce of the day's activities, safe work practices, environmental protection practices, work area restrictions, activities that may affect the work, coordination issues with other trades, hazards and other information that may be relevant to the day's work. The Foreman, or other appropriate site staff member, will conduct a daily pre-start meeting with the site workforce before the commencement of work each day (or shift) or where changes occur during a shift. Pre-start meetings may be project-wide and/or held for specific work areas. Daily pre-start meetings are generally succinct in nature and take approximately 10-15 minutes.

The environmental component of pre-starts meetings will include any environmental issues that could potentially be impacted by, or impact on, the day's activities, as determined by the Foreman and environmental personnel. All attendees will be required to sign on to the pre-start meeting and acknowledge their understanding of the issues explained.

Pre-start topics, dates delivered, and a register of attendees will be recorded by the Environmental Manager and/or the Environmental Coordinator and the records maintained.

4.1.3 Competence

The Project team shall:

- Determine the necessary competence of persons doing work under its control that affects its environmental performance and its ability to fulfil its compliance obligations
- Ensure that these persons are competent on the basis of appropriate education, training or experience
- Determine training needs associated with its environmental aspects and its environmental management system
- Where applicable, taken actions to acquire the necessary competence, and evaluate the effectiveness of the actions taken.

This will feed into the overall training matrix for the Project detailed in Section 4.1.2.

4.2 Working hours

Construction, including the delivery of materials to and from the site, may only be carried out between the following hours:

- Between 7:00 am and 6:00 pm, Mondays to Fridays inclusive
- Between 8:00 am and 1:00 pm, Saturdays.
- No work may be carried out on Sundays or public holidays.

Activities may be undertaken outside of the standard construction hours if required:

- By the Police or a public authority for the delivery of vehicles, plant or materials; or
- In an emergency to avoid the loss of life, damage to property or to prevent environmental harm; or

- Where the works are inaudible at the nearest sensitive receivers; or
- Where a variation is approved in advance in writing by the Planning Secretary or her nominee if appropriate justification is provided for the works.

Notification of such activities must be given to affected residents before undertaking the activities or as soon as is practical afterwards.

Rock breaking, rock hammering, sheet piling, pile-driving and similar activities may only be carried out between the following hours:

- 9am to 12pm, Monday to Friday
- 2pm to 5pm Monday to Friday
- 9am to 12pm, Saturday.

Noise generating construction activities should be undertaken in accordance with the Interim Construction Noise Guideline (DECC, 2009). Furthermore, the development must be constructed to achieve the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures identified in the approved Construction Noise and Vibration Management Plan.

Construction vehicles (including concrete agitator trucks) will not arrive at the site or surrounding residential precincts outside of the construction hours of work.

Any noise generated during construction of the development would not be offensive noise within the meaning of the *Protection of the Environment Operations Act 1997* or exceed approved noise limits for the site.

5 Communication

Clear lines of communication throughout all levels and functions (e.g. management, staff and sub-contracted service providers), is key to minimising environmental impacts and achieving continual improvements in environmental performance.

5.1 Internal communication

The environment team will meet regularly to discuss any issues with environmental management, any amendments to plans that might be required or any new / changes to construction activities.

The environment team members will participate in regular toolbox talks to communicate to the wider project personnel on environmental performance, to advise on any upcoming sensitive environmental matters for future work areas and to receive feedback from on-site personnel.

Further internal communications regarding environmental issues and aspects will be through awareness training and pre-start meetings as described in Sections 4.1.1 and 4.1.2.

External notification of events will be via the Project Manager as required.

5.2 External Communication

5.2.1 Liaison with government authorities

The Environmental Manager is responsible for reporting on the ongoing environmental performance of the Project to government authorities. The project will nominate a 24-hour contact phone number for any inquiries.

5.2.2 Community liaison and/or notification

A site notice will be prominently displayed at the boundaries of the site for the purposes of informing the public of project details including, but not limited to the details of the Builder, Certifying Authority and Structural Engineer. The notice will include the following:

- Be at least 841 mm X 594 mm (A1) with any text on the notice to be a minimum of 30-point type size
- Be durable and weatherproof and is to be displayed throughout the works period
- Advise of the approved hours of work, the name of the site/ project manager, the responsible managing company (if any), its address and 24-hour contact phone number for any inquiries, including construction/ noise complaint must be displayed on the site notice
- Will be mounted at eye level on the perimeter hoardings/fencing and is to state that unauthorised entry to the site is not permitted.

In accordance with the community communication strategy, where residents are located within 500m of the site, a notification will be provided regarding the timing and duration of construction works. Refer to the community communication strategy for further information.

5.2.3 Complaints and enquiries management

The community communication strategy outlines the procedures for communication between the Principal Contractor, Wollondilly Shire Council and the community including but not limited to adjoining affected landowners and businesses.

A contact phone number will be provided for any complaints or enquiries during construction. All community enquiries and complaints related to the construction activities will be referred to the community information line.

The telephone number and email address will be included on the notice to be located on the perimeter hoarding/fencing surrounding the Project.

Records of all complaints/communications received will be detailed in Principal Contractor's Complaints/Communication Register and include the following details:

- Date and time of the complaint/communication
- Method by which the complaint/communication was made
- Any personal details of the stakeholder
- The nature of the complaint/communication

- Action taken in relation to the complaint/communication and any follow up
- If no action taken, reasons why.

Attempts will be made to resolve all complaints in accordance with the Complaints and Enquiries Procedure. An initial response to complaints will be provided within 24 hours of a complaint being received. A further detailed response, including steps taken to resolve the issue(s) that lead to the complaint, will be provided within 10 days. All complaints will be closed off in the Complaints/Communication Register. The stakeholder will be kept informed of when they will receive a response.

The Environmental Manager will apply an adaptive approach to ensure that corrective actions are applied in consultation with the appropriate construction staff to allow modifications and improvements in the management of any environmental issues resulting in community complaints.

5.3 Incidents

5.3.1 Incidents

In the case of an incident, the Department of Planning will be notified in writing to compliance@planning.nsw.gov.au immediately after the incident is known. The notification must identify the development and set out the location and nature of the incident.

With seven days after the becoming aware of the incident, a written incident notification addressing the requirements set out below must be emailed to the Department at the following address: compliance@planning.nsw.gov.au. This notification will be provided regardless if the first notification 'immediately after the incident was known' was provided to the Department of Planning. The notification will include the following:

- Identify the development and application number
- Provide details of the incident (date, time, location, a brief description of what occurred and why it is classified as an incident)
- Identify how the incident was detected
- Identify when the applicant became aware of the incident
- Identify any actual or potential non-compliance with conditions of consent
- Describe what immediate steps were taken in relation to the incident
- Identify further action(s) that will be taken in relation to the incident
- Identify a project contact for further communication regarding the incident.

Within 30 days of the date on which the incident occurred or as otherwise agreed to by the Planning Secretary, a detailed report (and such further reports which may be requested) will be provided to the Planning Secretary and any relevant public authorities (as determined by the Planning Secretary) including the following information:

- Summary of the incident
- Outcomes of an incident investigation, including identification of the cause of the incident
- Details of the corrective and preventative actions that have been, or will be, implemented to address the incident and prevent recurrence
- Details of any communication with other stakeholders regarding the incident.

5.3.2 Incident investigation

Where required, due to the severity or ongoing nature of the incident, investigations will be conducted, and action plans established to ensure that the event does not occur again. Environmental investigations will include:

- Identification of the cause, extent and responsibility of the incident
- Identification and implementation of the necessary corrective action
- Identification of the personnel responsible for carrying out the corrective action
- Implementation or modification of controls necessary to avoid a repeat occurrence of the incident
- Recording of any changes in written procedures required
- Advising the relevant government agencies if any substantial pollution has occurred.

Where there are lessons learnt from the investigation or current procedures are identified as being ineffective, the CEMP will be revised by the Environmental Manager to include the improved procedures or requirement.

5.4 Monitoring, inspections and auditing

5.4.1 Environmental inspections

Regular inspections will be carried out during construction of the Project area by the construction/environmental team. Details are described in the following sections. Copies of all environmental inspection reports prepared by construction environmental staff will be kept with the project records and closed out within the agreed timeframes.

Inspections would be undertaken pre and post rainfall, where required, to evaluate the effectiveness of the environmental controls. Pre-rainfall inspections are undertaken to prepare for significant rainfall events whereas, post rainfall inspections are undertaken after more than 20mm of rain in a 24-hour period measured at the on-site weather station. The Environmental Coordinator records inspection findings on an inspection checklist form or mobile software application.

Observed deficiencies in maintenance, environmental controls or standard of environmental performance are recorded on the checklist form. Details of any maintenance required, the nature of the deficiency, any actions required, and an implementation priority will be recorded. Actions will be closed out in accordance with the identified priority and evidence of close out would be kept on file.

5.4.2 Pre-work inspections

Prior to the commencement of each shift, the Foreman would inspect the environmental controls in place for the work to ensure they are operating as designed. Walkthrough of sites with key subcontractors, Project Engineers and an Environmental Coordinator may also occur where high-risk works are proposed. Work will not commence unless the results of the inspections are found to be satisfactory.

5.4.3 Environmental monitoring

Monitoring will be undertaken to validate the impacts predicted for the Project, to measure the effectiveness of environmental controls and the implementation of this CEMP. Monitoring requirements are summarised in Table 5-1; full details concerning monitoring and reporting are presented in the corresponding environmental management sub-plans attached to this CEMP.

Table 5-1 Summary of environmental monitoring requirements

EIS SMM	DESCRIPTION	RELEVANT ENVIRONMENTAL MANAGEMENT SUB-PLAN
Noise and Vibration	Compliance vibration monitoring should also be undertaken during high vibration generating activities where buildings are located within the structural damage buffer distances to confirm vibration criteria are not exceeded	Construction Noise and Vibration Management Sub-Plan
	Upon receipt of a noise complaint, monitoring would be undertaken and reported as soon as possible. If exceedances are detected, the situation would be reviewed in order to identify means to attempt to reduce the impact to acceptable levels	Construction Noise and Vibration Management Sub-Plan
Sediment, erosion and dust controls	Nominate a suitably qualified environmental representative on site to complete self-audits and monitor Soil and Water Management Plans and ensure ongoing monitoring, maintenance and prevention of pollution	Project Environmental Management Plan Construction Soil and Water Management Sub-Plan
Waste management	On-going monitoring of adequacy and condition of on-site storage for demolition and construction waste Maintain waste tracking records, waste classification documents and waste disposal records	Project Environmental Management Plan

EIS SMM	DESCRIPTION	RELEVANT ENVIRONMENTAL MANAGEMENT SUB-PLAN
Aboriginal archaeological deposits	<p>If any Aboriginal archaeological deposits and/or objects are located during the development, then the following should take place;</p> <ul style="list-style-type: none"> All work is to cease in the immediate vicinity of the deposits and/or objects The area is to be demarcated OEH, a qualified archaeologist and the participating RAPs are to be notified 	Aboriginal Cultural Heritage Management Plan
Traffic	<p>Ensure that all VMPs TCPs comply with the Traffic Control at worksites manual, are current and approved prior to works commencing in sections controlled by a VMP or TCP</p> <p>Frequency: Weekly (or when site conditions change)</p>	Construction Traffic and Pedestrian Management Plan
	<p>Ensure that all ROL's are obtained through Council or TMC prior to any works on Old Hume Highway</p> <p>Frequency: 10 business days prior to works</p>	Construction Traffic and Pedestrian Management Plan
	<p>Check that all traffic management controls are in place, are in accordance with RMS requirements, the Traffic Control at worksites manual and reflect VMP and TCP requirements prior to works commencing</p> <p>Frequency: Daily (prior to works)</p>	Construction Traffic and Pedestrian Management Plan
	<p>ROs updated as required for works</p> <p>Frequency: Each shift</p>	Construction Traffic and Pedestrian Management Plan
	<p>Remove all temporary traffic management controls and signage at the completion of works</p> <p>Frequency: Each shift</p>	Construction Traffic and Pedestrian Management Plan

Should a non-conformance be detected or monitoring results directly attributable to the Project exceed the target set in the plans, the process described in Section 5.3 will be implemented. A non-conformance Environmental Incident Report and/or Environmental Improvement Notice may be issued by the Environmental Manager in response to the non-conformance if it is found to be construction-related. The timing for any improvement will be agreed between the relevant Engineer/Superintendent and Environmental Manager based on the level of risk (e.g. a significant risk will require immediate action). Environmental monitoring equipment will be maintained and calibrated according to the manufacturer's specifications and appropriate records kept.

5.4.4 Compliance Reporting

No later than two weeks before the date notified for the commencement of construction, a Compliance Monitoring and Reporting Program prepared in accordance with the Compliance Reporting Post Approval Requirements (Department 2018) must be submitted to the Department and the Certifying Authority.

Compliance Reports of the project must be carried out in accordance with the Compliance Reporting Post Approval Requirements (Department 2018).

The Applicant must make each Compliance Report publicly available 60 days after submitting it to the Department and notify the Department and the Certifying Authority in writing at least seven days before this is done.

5.4.5 Non-compliance notification

The Department will be notified in writing to compliance@planning.nsw.gov.au within seven days after a non-compliance becomes known. The Certifying Authority must also notify the Department in writing to compliance@planning.nsw.gov.au within seven days after they identify any non-compliance.

The notification must identify the development and the application number for it, set out the condition of consent that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

5.4.6 Auditing

Risk based internal auditing will be undertaken during the Project to verify compliance with:

- This CEMP and issue-specific plans
- Approval requirements
- Any relevant legal and other requirements (e.g. licenses, permits, regulations).

The Principal Contractor shall be responsible for carrying out internal auditing and maintain records of results of audits.

5.4.7 Independent Environmental Auditing

Independent environmental auditing will be undertaken during construction of the Project. The proposed independent auditors must be agreed to in writing by the Planning Secretary prior to the preparation of an Independent Audit Program or commencement of an Independent Audit.

No later than four weeks after the date notified for the commencement of construction, an Independent Audit Program prepared in accordance with the Independent Audit Post Approval Requirements (Department 2018) must be submitted to the Department and the Certifying Authority.

In accordance with the Independent Audit Post Approval Requirements (Department 2009)

- An initial construction Independent Audit must be undertaken within 8 weeks of the notified commencement date of construction
- A subsequent Independent Audit of construction must be undertaken no later than 6 months from the date of the initial construction Independent Audit.

The Planning Secretary may require the initial and subsequent Independent Audits to be undertaken at different times to those specified above, upon giving at least 4 weeks' notice to the applicant of the date upon which the audit must be commenced.

Independent Audits of the development must be carried out in accordance with:

- The Independent Audit Program submitted to the Department and the Certifying Authority
- The requirements for an Independent Audit Methodology and Independent Audit Report in the Independent Audit Post Approval Requirements (Department 2018).

In accordance with the specific requirements in the Independent Audit Post Approval Requirements (Department 2018), the Applicant must:

- Review and respond to each Independent Audit Report
- Submit the response to the Department and the Certifying Authority
- Make each Independent Audit Report and response to it publicly available within 60 days after submission to the Department and notify the Department and the Certifying Authority in writing at least seven days before this is done.

5.5 Environmental non-conformities

Any member of the Project team may raise a non-conformance or improvement opportunity. The Principal Contractor Quality Plan describes the process for managing non-conforming work practises and initiating corrective/preventative actions or system improvements.

A non-conformance is the failure or refusal to comply with the requirements of this CEMP and supporting documentation.

For each non-conformance identified, corrective/preventative action (or actions) must be implemented. In addition, any environmental management improvement opportunities can be initiated as a result of incidents or emergencies, monitoring and measurement, audit findings or other reviews. Improvement opportunities may also result in the implementation of corrective/preventative actions.

Corrective/preventative actions and improvement opportunities will be entered into the contractor's quality system database and include detail of the issue, action required and timing and responsibilities. The record will be updated with date of close out and any necessary notes. The database will be reviewed regularly to ensure actions are closed out as required.

Non-conforming activities may be stopped, if necessary, by the Environmental Manager, the Environmental Coordinator or the Project engineers following consultation with the Construction Manager or delegate. The work will not recommence until a corrective / preventative action has been closed out. In such circumstances a non-conformance report must be prepared in accordance with the Quality Plan.

5.5.1 Corrective actions

Corrective actions shall be appropriate to the significance of the effects of the nonconformities encountered, including the environmental impact(s).

The Project team shall retain documented information as evidence of:

- The nature of the nonconformities and any subsequent actions taken; and
- The results of any corrective action.

5.6 Records of environmental activities

5.6.1 Environmental records

The Environmental Manager is responsible for maintaining all environmental management documents and records as current at the point of use. Types of documents and records include:

- All site monitoring, inspection and compliance reports/records
- Correspondence with public authorities
- Internal and external audit reports
- Induction and training records
- Reports on environmental incidents, other environmental non-conformances, complaints and follow-up action
- Community engagement information
- Minutes of CEMP and construction environmental management system review meetings and evidence of any action taken
- CEMP and issue specific plans
- Toolbox talks and pre-starts
- Weekly planning meetings
- Emails or formal correspondence
- Site meetings.
- EWMS.

All environmental management documents are subject to ongoing review and continual improvement. This includes times of change to scheduled activities or to legislative or licensing requirements.

Only the Environmental Manager, or delegate, has the authority to change any of the environmental management documentation. These documents would be held for five years after the actual completion date and be available to EPA or Department of Planning and Environment upon request.

5.6.2 Document control

The Environment Manager will coordinate the preparation, review and distribution, as appropriate, of the environmental documents and records listed above. During the Project, the environmental documents and records will be stored at the main site compound.

The Principal Contractor will implement a document control procedure to control the flow of documents within and between Department of Planning and Environment, stakeholders and subcontractors. The procedure will ensure that documentation is:

- Developed, reviewed and approved prior to issue
- Issued for use
- Controlled and stored for the legally required timeframe
- Removed from use when superseded or obsolete
- Archived.

A register and distribution list will identify the current revision of particular documents, records or data.

5.7 Management review

Periodic review meetings are undertaken as part of the continual improvement process. Table 5-2 sets out the purpose, frequency and attendees for the meetings. The outcomes of the reviews could include amendments to this CEMP and related documentation, revision to the Project's environmental management system, review of the risk assessment, re-evaluation of the Project objectives and targets as well as input into other Project documents.

Table 5-2 Project environmental management review meetings

MEETING	PURPOSE	FREQUENCY	ATTENDEES
Management review	<ul style="list-style-type: none"> • Identification of areas of opportunity for improved environmental performance • Analysis of the causes of nonconformities and deficiencies, including those identified in environment inspections and audits • Verification of the effectiveness of corrective and preventative actions • Highlighting any changes in procedures resulting from process improvement • Cumulative impacts from surrounding development activities. 	Quarterly	Contractor's Project Manager, Construction Manager, Superintendent and Environmental Manager
Environment compliance	<ul style="list-style-type: none"> • A review of the aspects and impacts register, legal register and environmental induction • Consideration of monitoring, inspection and audit results • Consideration of incidents and any lessons learnt • Consideration of new regulatory issues • A review of the effectiveness of erosion and sediment controls • Consideration of changes in operational needs such as resourcing • Feedback from management reviews 	Quarterly	Contractor's Environmental Manager and Environmental Coordinator

MEETING	PURPOSE	FREQUENCY	ATTENDEES
Executive review	<ul style="list-style-type: none"> • Effectiveness of environmental management documentation implementation • Management effectiveness • Potential improvements to the environmental management documentation. • Adequacy of resources • Findings of audits • Environmental objectives and targets environmental performance. • Compliance with legal and other requirements • Critical non-conformance or repeated non-conformances. • Organisation changes • Effectiveness of training and inductions 	Annually	Contractor's Project Manager, Construction Manager and Environmental Manager

5.8 CEMP revision

A document review process ensures that environmental documentation including this CEMP is updated as appropriate for the specific work that is occurring on-site. This includes the management review process described in Section 5.7.

Should the document review process identify any issues or items within the documents that are either redundant or in need of updating, it is the responsibility of Principal Contractor to prepare the revised documents. The revised document will be issued to the Project Manager for endorsement of the changes.

Revised versions of the CEMP will be made available through the process described in Section 5.6.2.

6 Construction – operational control

The issue specific environmental management plans supporting the CEMP identify the requirements and processes applicable to specific impacts or aspects of the activities described in Appendix A2 of this CEMP. They address requirements of the EIS, Submissions Reports, EIS development consent and measures identified in the environment assessment documentation. The issue specific environmental management plans and supporting appendices prepared under the CEMP for the Project are listed in Section 2.1.2.

6.1 Project refinements

Any design changes or changes in scope of works should be communicated to the Environmental Manager. Where required, the Environmental Manager will then undertake an additional environmental assessment and consistency review to determine the approval pathway and responsibility.

Refinements to the Project may result from detailed design refinement or changed circumstances throughout construction. Roads and Maritime is responsible for assessing Project modifications and for documenting refinements that are consistent with the approved Project that fall within Division 5.1 of the EP&A Act.

The Environmental Manager is responsible for incorporating any new environmental impacts and/or new statutory approval requirements into the appropriate environmental management documentation.

6.2 Ancillary sites

Additional or alternative ancillary facilities will be located to meet the following criteria, where possible:

- To be operational during a flood event and avoid or minimise impacts to surrounding properties
- More than 40 metres from a watercourse
- More than 50 metres from residential dwellings
- In previously disturbed areas that do not require the clearing of native vegetation
- In plain view of the public to deter theft and illegal dumping
- Outside the drip line of trees
- On relatively level ground
- Away from areas of heritage conservation value.

6.3 Project completion

Following commissioning and prior to demobilisation from site, the Environmental Manager shall identify the environmental issues associated with the finalisation of works.

In particular, the following completion practices shall be performed:

- Environmental approval/licence closeout
- Post construction land assessment in accordance with G36
- Subcontractor Assessment
- Lessons learned.

6.4 Restoration of the Project area

On completion of the work, all areas disturbed by construction activities (including the site compound, materials storage, access and haul roads) will be reinstated and restored to conditions identified in the pre-construction land assessment or as agreed with the landowner.

Appendix A Legal Framework

LEGISLATION AND REGULATION	RELEVANCE
<i>Environmental Planning and Assessment Act 1979</i> <i>Secretary's Environmental Assessment Requirements</i>	Secretary's Environmental Assessment Requirements have been prepared for the Project. The requirements outline the key issues that must be addressed including the environmental management plan during the operations phase
<i>Protection of the Environment Operations Act 1997</i>	Aims to minimise impacts, including noise, air and waste pollution, on the environment.
<i>Protection of the Environment Operations (General) Regulation 2009</i>	Contains penalty notice provisions for infringements of the Protection of the Environment Operations (Waste) Regulation 2005 (as amended) and the NSW PEO Act.
<i>Protection of the Environment Operations (Waste) Regulation 2017</i>	Provides regulations for the storage, management and transport of waste.
<i>Waste Avoidance and Resource Recovery Act 2001 (WARR Act)</i>	Supplementary legislation aimed at reducing waste and resource consumption, defining the waste hierarchy and promoting its adoption across NSW.
<i>Environmentally Hazardous Chemicals Act 1985</i>	Controls the movement, storage, and disposal of chemical waste. Administered by EPA and the Hazardous Chemicals Advisory Committee.
<i>Contaminated Land Management Act 1997</i>	Provides a process for investigation and where appropriate, remediating land that is considered contaminated including the duty to report contamination and undertake site audits.
<i>Biodiversity Conservation Act 2016</i>	Seeks to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development.

Appendix B 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 2020.

Clive Wickham
Chief Operating Officer

Appendix C Project Environmental Management Plan

PROJECT ENVIRONMENTAL MANAGEMENT PLAN (PEMP)

Picton High School

480 Argyle Street, Picton



E-PLAN-03 (Rev. September 2019) | Approved by Andrew Andreou
Uncontrolled copy once printed




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1. INTRODUCTION

1.1 PROJECT INFORMATION TABLE

Project information table				
Project name	Picton High School M2			
Location	480 Argyle Street, Picton NSW2571			
Client	School Infrastructure NSW			
Duration of contract	105 Weeks			
Taylor contact information				
Company name	Taylor Construction Group Pty Ltd			
ABN	25 067 428 344			
Address	Level 13, 157 Walker Street, North Sydney 2060			
Telephone and fax	Ph.: 02 8736 9000 Fax: 02 8736 9090			
Position	Contact name	Phone numbers		
Chief Operating Officer	Clive Wickham	02 8736 9000		
General Manager	Chris Bulmer	02 8736 9000		
Construction Manager	Doug Woods	02 8736 9000		
Project Manager	Hazem Gergis	0435 009 588		
Project Manager	Jack Fenton	0475 753 917		
Site Manager	Ben Langshaw	0426 325 254		
HSE Manager	Andrew Andreou	0404 492 614		
Safety Advisor	Bradley Warren	0435 080 348		
Quality Manager	Stephen Player	02 8736 9000		
Contract Manager	Steve Bitzos	0415 301 498		
Contract Administrator	Joshua Norman/Burak Sencan	0405 289 117 / 0414 781 288		
Project Engineer	Simon Chow	0410 686 228		
Site Engineer	David Tran	0433 618 021		
Foreman	Rob Jay	0477 111 114		
Cadet	Kurt Dessman/Jacquiline Cuizon	0431 205 832 / 0426 108 219		
Document control	Name	Position	Signature	Date
Prepared by	Hazem Gergis	Project Manager		16/12/19
Reviewed by:	Doug Woods	Construction Manager		20/1/20
Reviewed by:	Andrew Andreou	HSE Manager		
Revised by	Revision #	Date	Changes made	
J. FENTON	2	20/01/20	CHANGES OF STAFF + SIGNATURES + SCHAFT	

1.2 PROJECT DESCRIPTION

THIS PROJECT INVOLVES

Description of the Works

NSW Department of Education proposes to increase the capacity of Picton High School to meet the growing demand for public education in South West Sydney. Picton High School Redevelopment will see a major upgrade of the existing school to incorporate core facilities for 2,000 students and permanent teaching spaces to accommodate 1,500 students.

This project involves the construction of three (3) Milestones and they are:

Milestone 1 - Early Works

- Site establishment of temporary fencing and hoarding
- Supply and Installation of 103 Demountable Buildings temporarily including all classrooms and core facilities to facilitate School Students and Staffs in preparation for Milestone 2 works
- Physical relocation of school equipment to offsite storage facility
- Development of a new driveway at the south of the site
- Installation of services infrastructure i.e. an additional 'Kiosk Substation' to accommodate the temporary school
- New entrances and access
- Relocate the existing agr.culture plot and associated enclosure to offsite location

Milestone 2 - Main Works

- Demolition of various existing buildings
- Refurbishment of various existing buildings
- Construction of new administration facility
- Expansion of various existing core facilities
- Construction of various new core facilities
- Upgrade to existing bus pickup and drop-off area

Milestone 3 - Make Good Works

- Decommissioning and coordination for removal of demountable school including all infrastructure
- Make good landscape works after temporary school has been removed from site
- Relocation of off site animal enclosure to new site location
- Refurbishment of existing Hall (Block M)

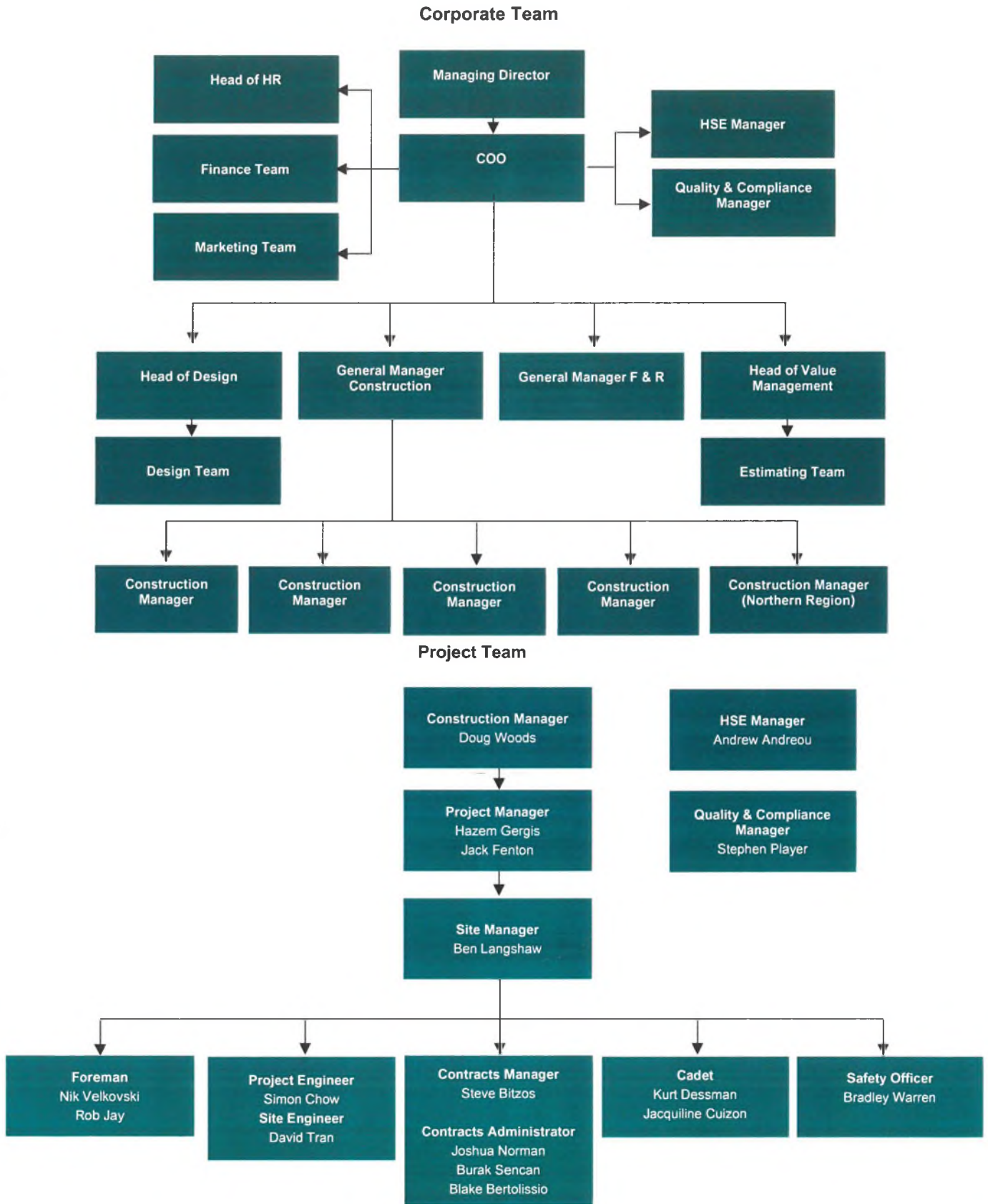
1.3 PURPOSE OF THE PROJECT ENVIRONMENTAL MANAGEMENT PLAN

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 Project Environmental Management Plan (PEMP), 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 PEMP 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 Project 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.

1.4 ORGANISATIONAL CHART



2. HIERARCHY OF HSE SYSTEM DOCUMENTS



3. ENVIROMENTAL POLICY

Taylor Construction Group has an Environmental Policy outlining our commitment to 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.

4. 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.

4.1 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.	<p>Identification of sources of noise/ vibration and estimates of project-wide noise.</p> <p>Ensure that noise and vibration levels meet acceptable standards and that an adequate level of service, safety and public amenity is maintained.</p> <p>Propose measures to manage and/ or mitigate impacts.</p>
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.	<p>Details of site drainage, hydrocarbon use, disposal of plant site waste (including sewage), dewatering, and fate of water used/ pumped.</p> <p>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.</p> <p>Drainage lines are to be naturalised as much as possible and should enhance the ecological values and recreational opportunities.</p> <p>Propose measures to manage and/ or mitigate impacts.</p>

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 that 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 appropriate criteria and do not cause an environmental or human health problem.	Identification of sources of particulates/ dust and estimates of project-wide emissions. 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.
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 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.

4.2 SPECIFIC UNDERTAKING FROM FORMAL ENVIRONMENTAL IMPACT ASSESSMENT

- Tree Protection Zones
- Cattle Grid and Tyre Wash
- Misting System for Dust Control
- Sediment Fencing

4.3 DEVELOPMENT CONSENT CONDITIONS

Consent working hours are:

Monday to Friday	7 am	5 pm
Saturdays	8 am	1 pm
Sundays and public holidays	NO WORK	

Include all other relevant consent conditions below, **DELETE** if no conditions and **UPDATE** table of contents:

CC	Condition	Monitoring and Environmental Audits	Construction	Not Triggered	Through the implementation of EMP and weekly inspections	Weekly inspection reports Taylor internal audits Client
CC1	A21	A21 Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance reporting and independent auditing.	Construction	Not Triggered	Through the implementation of EMP and weekly inspections	Weekly inspection reports Taylor internal audits Client
	B14	Environmental Management Plan Requirements B14 Management plans required under this consent must be prepared in accordance with relevant guidelines, and include: (a) detailed baseline data; (b) details of: (i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); (ii) any relevant limits or performance measures and criteria; and (iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; (c) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria; (d) a program to monitor and report on the: (i) impacts and environmental performance of the development; (ii) effectiveness of the management measures set out pursuant to paragraph (c) above; (e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as (f) a program to investigate and implement ways to improve the environmental performance of the development over time; (g) a protocol for managing and reporting any: (i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria) (ii) complaint; (iii) failure to comply with statutory requirements; and (h) a protocol for periodic review of the plan. Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	Pre-Construction		PCA Acceptance	Issue of CC

CC1	B15	B15 Prior to commencement of construction, the Applicant must prepare a Construction Environmental Management Plan (CEMP) and it must include, but not be limited to, the following:	Pre-Construction	PCA Acceptance	Issued to Design confidence, Mace and SINSW 5/4/19
CC1		(a) Details of:			
CC1		(i) hours of work;			
CC1		(ii) 24-hour contact details of site manager;			
CC1		(iii) management of dust and odour to protect the amenity of the neighbourhood;			
CC1		(iv) stormwater control and discharge;			
CC1		(v) measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;			
CC1		(vi) groundwater management plan including measures to prevent groundwater contamination;			
CC1		(vii) external lighting in compliance with AS 4282-1997 Control of the obtrusive effects of outdoor lighting;			
CC1		(viii) community consultation and complaints handling;			
CC1		(b) Construction Traffic and Pedestrian Management Sub-Plan (see condition B17);			
CC1		(c) Construction Noise and Vibration Management Sub-Plan (see condition B18);			
CC1		(d) Construction Waste Management Sub-Plan (see condition B19);			
CC1		(e) Construction Soil and Water Management Sub-Plan (see condition B20);			
CC1		(f) Aboriginal Cultural Heritage Management Sub-Plan (see condition B21);			
CC1		(g) an unexpected finds protocol for contamination and associated communications procedure;			
CC1		(h) an unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated communications procedure;			
CC1		(i) waste classification (for materials to be removed) and validation (for materials to remain) be undertaken to confirm the contamination status in these areas of the site; and			
CC1	B16	B16 The Applicant must not commence construction of the development until the CEMP is approved by the Certifying Authority and a copy submitted to the Planning Secretary	Pre-Construction	PCA Acceptance	Approval by PCA and record of submission to planning
CC1	B17	B17. The Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP) must address, but not be limited to the following:	Pre-Construction	PCA Acceptance	Sub-plan included in the CEMP refer to B15 and B16
CC1		(a) be prepared by a suitably qualified and experienced person(s);			
CC1		(b) be prepared in consultation with Council and RMS;			
CC1		(c) detail the measures that are to be implemented to ensure road safety and network efficiency during construction in consideration of potential impacts on general traffic, cyclists and pedestrians, and bus services;			
CC1		(d) detail heavy vehicle routes, access and parking arrangements;			
CC1		(e) include a Driver Code of Conduct to:			
CC1		(i) minimise the impacts of earthworks and construction on the local and regional road network;			
CC1		(ii) minimise conflicts with other road users;			
CC1		(iii) minimise road traffic noise; and			
CC1		(iv) ensure truck drivers use specified routes;			
CC1		(f) include a program to monitor the effectiveness of these measures; and			
CC1		(g) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes;			
CC1	B18	B18. The Construction Noise and Vibration Management Sub-Plan must address, but not be limited to, the following:	Pre-Construction	PCA Acceptance	Sub-plan included in the CEMP, refer to B15 and B16
CC1		(a) be prepared by a suitably qualified and experienced noise expert;			
CC1		(b) describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009);			
CC1		(c) describe the measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;			
CC1		(d) include strategies that have been developed with the community for managing high noise generating works;			
CC1		(e) describe the community consultation undertaken to develop the strategies in condition B18(d); and			
CC1		(f) include a complaints management system that would be implemented for the duration of the construction;			
CC1	B19	B19. The Construction Waste Management Sub-Plan (CWMSWP) must address, but not be limited to, the following:	Pre-Construction	PCA Acceptance	Sub-plan included in the CEMP, refer to B15 and B16
CC1		(a) detail the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations;			
CC1		(b) removal of hazardous materials including asbestos, particularly the method of containment and control of emission of fibres to the air, and disposal at an approved waste disposal facility in accordance with the requirements of the relevant legislation, codes, standards and guidelines, prior to the commencement of any building works;			
CC1	B20	B20. The Applicant must prepare a Construction Soil and Water Management Plan (CSWMSP) and the plan must address, but not be limited to the following:	Pre-Construction	PCA Acceptance	Sub-plan included in the CEMP, refer to B15 and B16
CC1		(a) be prepared by a suitably qualified expert, in consultation with Council;			
CC1		(b) describe all erosion and sediment controls to be implemented during construction;			
CC1		(c) 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);			
CC1		(d) detail all off-Site flows from the Site; and			
CC1		(e) 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 1-year ARI, 1 in 5-year ARI and 1 in 100-year ARI;			

4.4 ENVIRONMENT PROTECTION LICENSE OR OTHER APPROVALS

Include any Environment Protection License details below, **DELETE** if no license and **UPDATE** table of contents:

- N/A Refer to signed Environmental Management Plan Dated 15/5/19

References:

- NSW Environmental Management System Guidelines 2015
- Legal and Other Requirements Procedure SE-P-01
- Environmental Legal and Other Requirements Register E-R-01

5. 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 Construction Group, 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**.

5.1 ENVIRONMENTAL RISK ASSESSMENT

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

Taylor Construction 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 minimize 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 HSE Acts; WHS regulation; Australian/ National Standards; codes of practice; available internal and external industry bulletins/ alerts and industry reports to identify and document any known or foreseeable hazards associated with that tasks.

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

6. OBJECTIVES AND TARGETS

Objectives and targets are set at a corporate level. They are monitored and measured to ensure that Taylor Construction Group 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.

7. ROLES AND RESPONSIBILITIES

All persons working for and on behalf of Taylor Construction Group 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 Construction.

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.

7.1 CHIEF OPERATING OFFICER

The chief operating officer is responsible for:

- Defining Taylor Construction workplace health and safety policies and setting their objectives;
- Providing leadership that promotes and maintains Taylor's determination to continually improve its performance in workplace health and safety;
- Demonstrating genuine interest in workplace health and safety; supporting all project managers to encourage incident prevention;
- Acquiring and keeping up-to-date knowledge of workplace health and safety matters;
- Gaining an understanding of the operations of the business and the hazards and risks involved,
- Ensuring information regarding incidents, hazards and risks is received responded to in a timely way;
- Ensuring the PCBU has, and implements, processes for complying with any legal duty or obligation;
- Being fully briefed of the safety status of all current Taylor Construction projects,
- Setting targets and allocating priorities for workplace health and safety matters for all Taylor Construction staff;
- Leading by example in all matters concerning workplace health and safety

Name: Clive Wickham

Signed:



Date:

28/10/19

7.2 GENERAL MANAGER

The general manager is responsible for:

- Demonstrating genuine interest in workplace health and safety; supporting all project and site managers to encourage incident prevention;
- Assessing and allocating appropriate resources and equipment within the company for the effective implementation of the Workplace Health and Safety Management System and the management of WHS related hazard/ risks relevant to the construction projects;
- Being fully briefed of the HSE status of all current Taylor Construction projects;
- Assisting in the development and implementation of continuous improvement processes for workplace health and safety.

Specific roles:

- Provide visible commitment to a safe and healthy work environment by ensuring regular reviews are undertaken. Participate in health and safety meetings and consultation regarding workplace health and safety matters;
- Consider workplace health and safety matters with other senior members of the organisation as part of normal business practice and incorporate WHS into meeting agendas;
- Allow appropriate budget allocations for HSE management and improvement;
- Encourage and promote safety within the company by participating and openly consulting with employees in respect to their health and safety.

Name: *TIM CHRISTIE*

Signed: *[Signature]*

Date: *2.11.2020*

7.3 CONSTRUCTION MANAGER

The construction manager is responsible for:

- Demonstrating genuine interest in workplace health and safety; supporting all the project/ site managers to encourage incident prevention;
- Assessing and allocating appropriate resources and equipment within the company for the effective implementation of the workplace health and safety management system and the management of WHS related hazard/ risks relevant to the construction projects;
- Assisting in the development and implementation of continuous improvement processes for workplace health and safety;
- Checking that legislative obligations are met, and that Taylor Construction OHS Policy is effectively implemented throughout all company construction projects;
- Ensuring compliance with Taylor Construction accredited HSE systems is maintained and implemented across all Taylor managed projects.

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 health, safety, quality and programming requirements of both the head contract and the company' 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 matters;
- Encourage and promote safety within the company by participating and openly consulting with employees in respect to their health and safety;
- Assist the HSE manager in allocating competent personnel to coordinate workplace health and safety within the company;
- Ensure that project/ site managers have developed and implemented systems, which will ensure subcontractors/ suppliers engaged by the company comply with the health and safety management systems and the relevant WHS legislation;
- Consider workplace health and safety matters with other senior members of the organisation as part of normal business practice and incorporate WHS into meeting agendas;
- Support the HSE manager in ensuring project/ site managers have developed and implemented systems which will ensure subcontractors and suppliers engaged by the company comply with the health and safety management systems and the relevant workplace health and safety 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;
- Allow appropriate budget allocations for HSE management and improvement;
- Facilitate a systematic approach of workplace health and safety to the identification, assessment, control and monitoring of related risks that may arise through both normal and adverse operating conditions.

Name:

DOUG WOODS

Signed:

D Woods

Date:

25/10/19

7.4 PROJECT MANAGERS

The project managers are responsible for:

- Providing 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 matters;
- Consulting with Taylor's construction manager and the HSE manager to ensure enough resources are allocated to the project to comply with legislative and Taylor's HSE requirements;
- Facilitating the process to ensure the project team and the HSE manager are consulted and participate in the development of the project specific HSE Risk Assessment. This is to be done prior to such activities commencing;
- Ensuring compliance with safety legislation, regulations, licensing conditions and authorities requirements relevant to all construction work;
- Ensuring adequate 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, leading hand or foreman);
- Developing, implementing and reviewing, in consultation with the site manager and HSE manager, the specific site safety plans;
- Identifying, planning and ensuring all safety training required for personnel is undertaken to support project needs, whether on or off-site. This task may be done in liaison with the HSE manager;
- Ensuring provisions are made for having a trained first aider present on site throughout all working hours;
- Ensuring that potential subcontractors have been issued with a copy of the **Contractor's HSE Requirements QSE-F-15.23** (letter template) at tender stage and ensuring, upon successful awarding of contract, that required WHS documents are made available by the subcontractor and reviewed by the project team prior to the subcontractor commencing;
- Supporting the site manager in the management of employee, subcontractor and supplier's performance in complying with Taylor's WHS Plan and the site-specific rules for the project;
- Selecting appropriate subcontractors, giving due regard to their ability to comply with legislative and Taylor's WHS requirements;
- Ensuring incidents are investigated and appropriate action taken as required by Taylor's site Safety Plan requirements in consultation with the HSE manager;
- Ensuring safety Notices issued and/ or visits made to the project by industrial representatives and/ or SafeWork NSW are reported to both managing director and HSE manager;
- Assisting the HSE manager when employees have been injured to evaluate suitable duties and encourage employee's early rehabilitation;
- Developing and implementing site evacuation and emergency procedures and overseeing at least one spontaneous evacuation drill every six months and assessing the results of that drill;
- Demonstrating an attitude to stimulating a high level of safety awareness at all times, leading by example and encouragement with a view to continuous improvement;
- The project manager is required to carry out at least one formal site safety inspection per month on every site under their control;
- Reporting back to Taylor's senior managers the project HSE incidents, external authority visits and/ or Notices issued.

Name: *MICK UPSTON*

HAZEN GREGG *Heaven Gaggis* 3-12-19
JACK FENSON 5-12-19

Signed:

Date:

7.5 HSE MANAGER

The HSE manager is responsible for:

- Overseeing the implementation of Taylor's Health, Safety and Environmental Management System throughout all Taylor Construction activities;
- Ensuring the system is maintained and continuously improved;
- Setting targets and allocating priorities within the framework of the Safety Management System;
- Safeguarding compliance and maintenance of the company's third-party accreditations;
- Planning and delivering training in safety 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;
- Compiling safety data from weekly and monthly project reports;
- Reviewing, analysing and reporting on safety performance to Taylor's managing director, sector managers and any party as arranged by the managing director;
- Ensuring compliance with safety legislation, regulations, licensing conditions and authorities requirements;
- Monitoring construction industry safety technology and management practices;
- Ensuring Taylor's workplace health and safety is reviewed on a regular basis (i.e. arranging for internal and external audits);
- Reviewing internal and external (independent) audit reports and, in consultation with the directors and the project manager, develop appropriate Action Plans if necessary;
- Conducting or delegating internal workplace health and safety audits;
- Workers compensation and return-to-work duties, including notification, recording and first point of contact. These duties may be delegated to appropriate personnel;
- Identifying hazards, assessing risks and 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 managing director and/ or sector managers on outcomes of investigations;
- Acquiring and disseminating information associated with construction industry safety;
- Ensuring HSE policies and procedures are implemented on all projects and that a specific site Safety Plan is prepared and implemented for all projects;
- Reviewing all project's health and safety targets; keeping abreast of the changing requirements and techniques;
- At the tender stage, reviewing nominated subcontractor's ability to comply with Taylor's site-specific rules and procedures as well as their own SWMS;
- At the tender stage, ensuring that valid certificates of currency (for workers compensation) are provided by all subcontractors prior to that subcontractor or his workers commencing on any Taylor's site.

Name: Andrew Andreou

Signed:



Date: 28-10-2019

7.6 PROJECT SAFETY ADVISOR

The project safety advisor is responsible for:

- Providing 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 matters;
- Assisting the HSE manager and project teams in implementing Taylor's health, safety and environmental procedures, policies and project systems in line with best practice and the relevant statutory legislation;
- Reporting any serious incident or near miss immediately to the HSE manager;
- Safeguarding compliance and maintenance of the company's third-party accreditations;
- Assisting project teams and subcontractors in meeting their workplace health and safety obligations;
- Ensuring compliance to this project Workplace Health and Safety Plan;
- Monitoring subcontractor's compliance with the site Safety Plan, and subcontractor compliance to their Safe Work Method Statements by conducting regular task observation/ audits;
- Where requested, assisting the project/ site manager with completing site inductions, project reports and daily diary entries;
- Undertaking workplace inspections to identify hazards and unsafe/ unhealthy workplace conditions and practices;
- Assisting the site manager/ area foreman in the management and supervision of subcontractors;
- Reporting incidents and/ or identified hazards and appropriate risk control measures to line managers;
- Assisting the project team in obtaining and auditing subcontractor's workplace health and safety documentation;
- Ensuring all workplace health and safety documents are maintained and filed in accordance with Taylor Construction filing requirements;
- Coordinating or conducting site toolbox talks and ensure subcontractors regularly consult with their employees on matters relating to HSE;
- Following up on project-based risk assessments to ensure they are being followed and updated as necessary;
- 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 forms 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 on the project who are competent or have been suitably trained to full fill these duties.

Name:

Bradley Warner

Signed:




Date:

29/10/2019.

7.7 SITE MANAGERS

The site managers are responsible for:

- Providing 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 matters;
- Unless otherwise nominated, undertaking the role of site safety advisor for safety issues and control of the site. This role is supported by the project manager and the HSE manager;
- Implementing, through consultation with the project manager, the Site Safety Plan in accordance with WHS legislation, regulations, codes of practice, Australian Standards and/ or other statutory requirements;
- Ensuring the project's site workers comply with the Taylor Construction project Safety Plan;
- Ensuring all workers and, if required, visitors, are site-specific inducted and aware of any compliance obligations;
- Ensuring site security and site-specific signage is fixed to key access, internal and perimeter areas including 24-hour project contact details, attendance details for visitors, PPE requirements and construction zone signage;
- Implementing and undertaking formal and proactive consultation measures between the project team and subcontractors;
- Ensuring items identified by safety or systems audits are rectified within specified timelines in consultation with the project manager, HSE manager and subcontractors;
- Consulting with all persons on safety issues, including changes to the workplace, and encouraging the involvement of all personnel in achieving a safe and healthy site;
- Managing any site-specific workplace health and safety issue in the first instance and discussing these with the project manager and/ or HSE manager as required;
- Developing, planning, implementing and reviewing site-specific emergency and evacuation procedures;
- Monitoring subcontractor's compliance with the site Safety Plan, in particular subcontractor's compliance to their Safe Work Method Statements, by conducting regular task observation/ audits;
- Identifying any hazards and assessing any risks on site and implementing risk control measures;
- Prior to commencement, reviewing subcontractor's WHS Plan/ SWMS with regard to the specific site task using forms **SE-F-14 Safe Work Method Statement Review Form** and **SE-F-14.1 Contractor's HSE Plan Review**;
- Ensuring that requirements contained in **SE-F-14 Safe Work Method Statement Review Form** and **SE-F-14.1 Contractor's HSE Plan Review** are met prior to works commencing on site;
- Periodically throughout the contractor's works, reviewing compliance with SWMS and sign off on the SWMS Checklist;
- 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 site diary;
- Utilizing experience and judgement to shut down and/ or evacuate any part of the site if a major health and safety risk occurs;
- Investigating, recording and reporting incidents and initiating corrective and action plans by relevant personnel. Reporting any serious incident immediately to the project manager and HSE manager;
- Providing support and assisting with rehabilitation of employees who have been injured at work by encouraging their early return to normality through work-based rehabilitation programs;
- Completing site diaries as per project administration requirements and forwarding that data to the HSE manager;
- Reviewing, coordinating and implementing emergency evacuation procedures and participating in drills at specified intervals (quarterly);
- Ensuring that all plant and equipment used on Taylor Construction sites are safe, correctly maintained and that the operator is correctly licensed or qualified for manipulating that equipment;
- Safeguarding compliance and maintenance of the company's third-party accreditations.

Name: BEN LANGSHAW  24.10.19

Signed:

Date:

7.8 SITE FOREMAN

The site foreman is responsible for:

- Implementing, through consultation with the project manager, the Site Safety Plan in accordance with WHS legislation, regulations, codes of practice, Australian Standards and/ or other statutory requirements;
- Assisting with the review and monitoring of subcontractor's Safe Work Method Statements (SWMS) in consultation with the senior site manager and site safety officer. Ensure that all requirements of forms **SE-F-14.1 Contractor's HSE Plan Review** and **SE-F-14 Safe Work Method Statement Review Form** are met and implemented on site;
- 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 subcontractor's compliance with the site Safety Plan and, in particular, subcontractor's compliance to their Safe Work Method Statements by conducting regular task observation /audits;
- Ensuring periodic reviews for compliance/ suitability of SWMS relevant to works under their control;
- Ensuring that site personnel comply with the Taylor Construction project Safety Plan;
- Ensuring all workers and, if required, visitors, are site-inducted and aware of any compliance obligations;
- Ensuring that site security and site-specific signage is fixed to key access internal and perimeter areas, including 24-hour project contact details, and that they are legible and current;
- Assisting with implementing and undertaking formal and proactive consultation measures between the project team and subcontractors;
- Ensuring items identified by safety or system audits are rectified within specified timelines in consultation with the project manager, site manager, site safety advisor and subcontractors;
- Consulting with all persons on safety issues, including changes to the workplace, and encouraging the involvement of all personnel in achieving a safe and healthy site;
- First response in managing site-specific workplace health and safety issues in the first instance, and discussing these with the project manager, site manager and/ or site safety advisor as required;
- Assisting with developing, planning, implementing and reviewing site-specific emergency and evacuation procedures;
- Monitoring subcontractor's compliance with the site Safety Plan, in particular subcontractor compliance to their Safe Work Method Statements;
- Identifying any 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 site diary;
- In consultation with the project manager and the senior site manager, and utilizing experience and judgement, shut down and/ or evacuate any part of the site if a major health and safety risk occurs;
- Investigating, recording and reporting incidents, and initiating corrective action plans by relevant personnel. Reporting any serious incident immediately to the project manager, the senior site manager and the HSE manager;
- Monitoring the use of personal protective equipment (PPE) by site personnel;
- Completing site diaries as per project administration requirements;
- Assisting 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 Construction sites are safe, correctly maintained and that the operator is correctly licensed or qualified for operating that equipment;
- Assisting with archiving project safety records and information.

Name:

Rob Jay

Signed:

[Handwritten signature]

Date:

25-10-19

[Handwritten signature]
13/12/19

7.9 CONTRACT ADMINISTRATOR/ SITE ENGINEER




The contract administrator and site engineer's responsibilities are:

- Support the project and site management in the management of employee, subcontractor and suppliers' performance in complying with Taylor Construction WHS and the site-specific rules for the project;
- Assist the project/ site manager to ensure the site Safety 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 subcontract agreement the requirement for subcontractors to carry out their works in accordance with the company's or subcontractor's approved Safety 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;
- At the tender interview stage, discuss with the subcontractors their obligation for managing HSE requirements by issuing to them relevant sections of the tender interview form and ensuring this is completed by subcontractor prior to commencing on site;
- Request and obtain from the subcontractor copies of their Quality and Safety Plans;
- Using returned form to assess subcontractor's abilities to comply with HSE requirements and make recommendations to the project/ site manager;
- Request and obtain from the subcontractor copies of their Workers Compensation and Public Liability Certificates of Currency, 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 and a copy uploaded onto U-drive;
- Ensure that the latest copies of Project Plans and HSE Risk Assessments are uploaded onto Project Centre, or preferred data control system used, and engaged subcontractors have access to these;
- Assist the project, site and safety managers in conducting project audits, reporting on safety compliance and maintaining safety records;
- Ensure all **external** complaints/ incidents are recorded on **SE-F-21 Incident Report Form** and filed in the External Complaints Register located in the OHS folder in the U-drive;
- Assist project and site management in the general administration of HSE where requested.

Name:

Signed:

Date:

SIMON CHEN  23/10/19
DAVID STAN  13/11/19
BLAKE BERTOLISIO  13/11/19.

7.10 BUILDING CADET

The building cadet health, safety and environmental responsibilities are:

- 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;
- Provide assistance with site contract administration and tendering;
- Manage project document control and provide design management assistance;
- Assist with on-site supervision;
- Assist the project/ site manager to ensure the site Safety Plans and associated documentation, including standard forms, procedures and templates, remain current and up to date;
- Forward to subcontractors a copy of HSE subcontractor requirement form **QSE-F-15.23 Contractor's HSE Requirements** (letter template), ensuring this is completed and returned by subcontractor prior to works commencing;
- Assist the project, site and safety managers with conducting project audits, reporting on safety compliance and maintaining safety records;
- Where required, assist the project and site managers with conducting site inductions;
- Fulfil responsibilities as outlined in the 'Taylor Cadet Program Guidelines', including undertaking an approved course of study at an Australian University;
- Assist project and site management 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: *KURT DESSMANN*

Blake Vassallo
Blake 13/01/20

Signed: 

Date: *23/10/19.*

JACQUILINE WILSON

 *23/10/19*

7.11 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:

- I Providing first aid assistance to persons ill or injured on site;
- II Recording all such assistance provided;
- III 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 subcontractor's, 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 Construction HSE 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.

Name: Bradley Warren Signed:  Date: 23/11/2019

Name: Rob Saff Signed:  Date: 6/11/19

Jack Fegan  5.12.19

7.12 PCBU AND WORKERS

PCBU and workers are responsible for:

- Attending Taylor Construction 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 Construction management in all requirements imposed in the interest of health, safety and welfare;
- Never intentionally or recklessly interfering with, misusing or removing 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 a 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.

8. INDUCTION

Taylor Construction 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 PEMP 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

9. 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 Construction Environmental Risk Management, as prescribed in chapter 11.3 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 agreed environmental system. Evidence of appropriate training shall be made available by the subcontractor to Taylor Construction upon request by a Taylor nominated representative.

The project/ site management, 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)

10. 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.

10.1 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

10.2 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.

10.3 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.

11. ENVIRONMENTAL RISKS

11.1 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)

11.2 SAFE WORK METHOD STATEMENTS (SWMS)

While Safe Work Method Statements 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 PEMP.

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

11.3 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.

11.3.1 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.

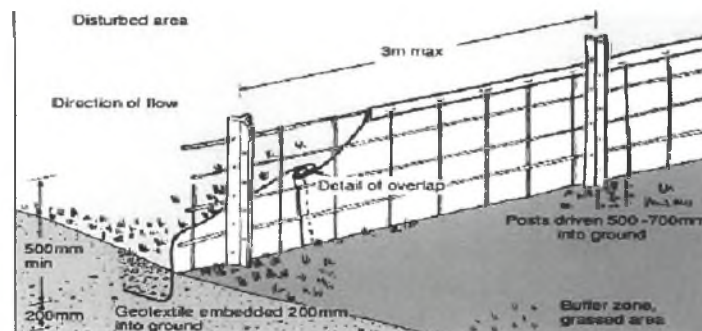
11.3.2 SOIL AND WATER MANAGEMENT/ SEDIMENTATION AND EROSION CONTROL

Taylor Construction Group and subcontractors shall plan and carry out works to avoid erosion and prevent sediment leaving the site to the surrounding land, watercourses, water bodies, wetlands and storm water 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 Construction site boundaries to control erosion, sediment and pollution within the site:

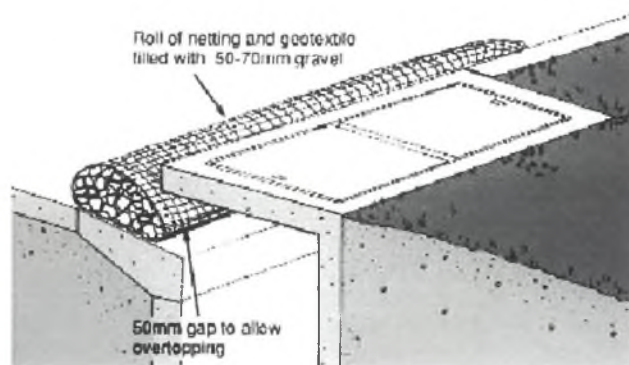
Sediment and erosion control devices. Unnecessary disturbance of the site shall not occur, and all cuts are to be stabilised as soon as possible after the completion of site earthworks. Extra care will be taken to prevent sediment run-off into all neighbouring lots and storm water. Any collected silt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

Silt fences. 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. Vehicular access will be controlled to prevent sediment being tracked. This will be done by maintaining an all-weather access/ driveway composed of an approved course 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 into 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

Include additional specific controls here and **UPDATE TABLE OF CONTENTS.**

11.3.3 VEGETATION MANAGEMENT

Taylor Construction Group 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.

11.3.4 WASTE MANAGEMENT AND RESOURCE RECOVERY

Taylor Construction Group 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 E-F-03**. 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 TCG environmental targets.

References:

- E-OP-02 Waste and Resource Management Procedure
- SE-F-23 KPI Monthly Report Form
- E-F-03 Waste and Recycling Register

11.3.5 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 Construction Group and subcontractors shall make all practical efforts to comply with statutory requirements for noise management and minimize 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 Safe Work Method Statements, 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

11.3.6 WATER QUALITY MANAGEMENT

Taylor Construction Group 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 Construction, 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 labelled to reduce 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 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 section on hazardous substances, chemicals, oils and other contaminants and the related procedure.

Pumping of storm water. If a sediment basin is required and storm water 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.

Storm water treatment. There are two treatment options for storm water 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)

11.3.7 AIR QUALITY MANAGEMENT

Taylor Construction Group 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 Construction Group 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 spilt by construction equipment onto public roads or other sealed pavements;
- The provision of coverings or stabilization 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 Construction sites.

11.3.8 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 controls 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 storm water 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 location of all hazardous substances, chemicals, fuels, oils, spill kits, storm water 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) 4677 1100
- MSDSS are located at: At First Aid Station

11.3.9 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 general policy on the use of pesticides is that they should only be applied by suitably qualified pest control contractors.

11.3.10 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 management of the contaminated soils from the assessment and other reports should be incorporated into this PEMP 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 the 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 Construction Group and subcontractors shall comply with relevant statutory requirements of Contaminated Land Management Act and the POEO Act (NSW) in relation to disturbance or treatment of potentially contaminated ground.

The company shall install any control measures needed to divert surface run-off away from contaminated ground and to treat any surface run-off contaminated by exposure to contaminated ground. Contaminated material removed from site must be recorded on the **Waste and Recycling Register E-F-03**.

References:

- Waste and Recycling Register E-F-03

11.3.11 ACID SULPHATE SOILS (ASS)

Acid sulphate soils are naturally occurring soils generally found in estuarine areas. When exposed to air, they can oxidize 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.

11.3.12 COMMUNITY COMPLAINTS

Community complaints should be treated as 'incidents': they must be reported to the HSE manager, be thoroughly investigated and reported on SharePoint. Reference to these are also to be documented and included in site diary entries. The project or site manager should try to resolve the issue with the community member in a conciliatory manner.

References:

- 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)

11.3.13 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 objects, regardless of significance, are protected under law. Should any deposit, artefact or material evidence (including skeletal remains) of Aboriginal origin be found, Taylor Construction Group 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 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 Construction Group 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 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, 2015

11.3.14 ADDITIONAL ENVIRONMENTAL ISSUES

Add any additional topic from Environmental Impact Assessment here and **UPDATE TABLE OF CONTENTS**.

12. INCIDENT AND EMERGENCY MANAGEMENT

12.1 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 11.3.8 'Spill response'.

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

12.2 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 Appropriate Regulatory Authority (ARA), contact the WHS manager for further advice prior to making an Investigation Report.

All environmental incidents that causes, 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)

13. ENVIRONMENTAL MONITORING AND INSPECTIONS

13.1 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.

13.2 PHYSICAL MONITORING

For many projects undertaken by Taylor Construction, physical environmental monitoring is not typically required (e.g. dust, water quality, noise levels, air quality, etc.). 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.

13.3 MONITORING OF PROJECT ENVIRONMENTAL TARGETS

Objectives and targets for the project are specified under 'Objectives and Targets' section of the PEMP. Data relating to these targets will be documented daily using site diaries, reviewed by project/ site managers on a monthly basis 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.

14. NON-CONFORMITY, CORRECTIVE AND PREVENTIVE ACTIONS

Taylor Construction 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

15. 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

16. CONTRACTOR MANAGEMENT

Taylor Construction Group, 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.

17. 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 Project 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 PEMP and, after the 6 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.

18. 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 6 months) during construction.



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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		

CERTIFICATE DATES:

Original / Initial	19/11/2009	Last Certificate update	18/05/2018
Certification / Re Certification	7/05/2018	Expiry	7/05/2021
Last Certification Decision	18/05/2018		

APPROVED COMPANY / SITE ADDRESS(ES):

Level 13, 157 Walker Street North Sydney 2060 NSW 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.104-087-65+



Certification Manager

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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:

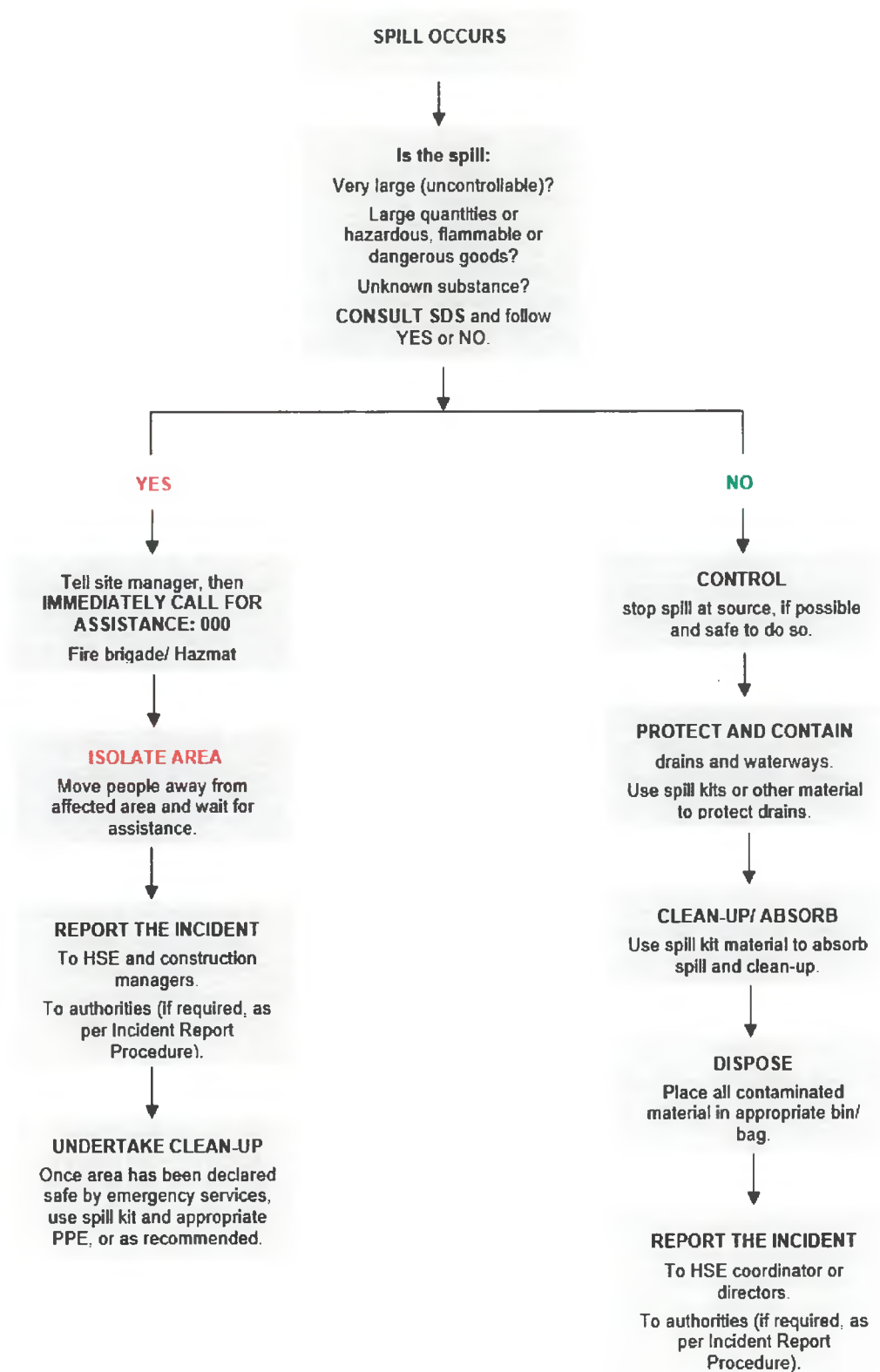
- Work pro-actively with our clients, regulators, and other community stakeholders to enable environmental issues to be addressed at an early stage of development.
- Take local community views into consideration and ensure that we inform, listen to and respond to reasonable concerns relating to our projects.
- 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 2020.



Clive Wickham
Chief Operating Officer

APPENDIX 3: TAYLOR CONSTRUCTION SPILL RESPONSE PROCEDURE FLOW CHART

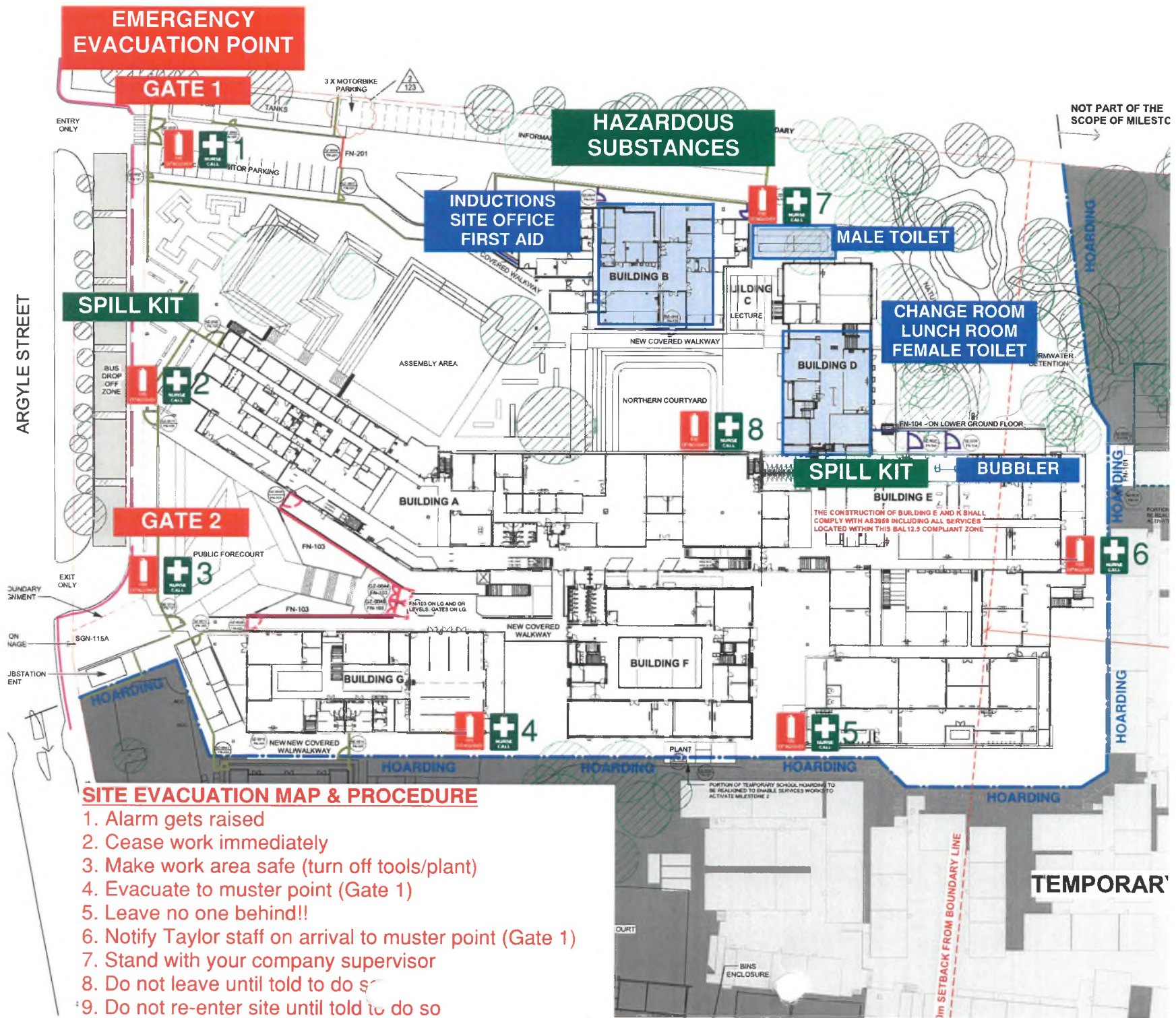


APPENDIX 4: SITE ENVIRONMENTAL EMERGENCY RESPONSE PLANS

Potential emergency	What to do?	Relevant authorities and persons
Injury caused by: <ul style="list-style-type: none"> – Fire – Explosion – Machinery accidents – Minor injuries 	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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. <p>Note: fire extinguishers are located throughout the site as detailed in the Emergency Evacuation Map.</p>	Emergency services Site manager Project manager Adjacent residents
Spills management and contaminated soils Major spills: <ul style="list-style-type: none"> • 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): <ul style="list-style-type: none"> • Immediately call the Fire Brigade and notify superintendent; • 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 SM and PM EPA
Minor site spills Acid sulphate soils	<ul style="list-style-type: none"> • 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; • Where acid sulphate soils are discovered, the spoil shall not be removed from site; subsequent notification and testing will follow. 	Emergency services (fire brigade) HSE manager SM and PM EPA
Heavy rainstorm and flood beyond the capacity of the sediment and erosion controls on-site or failure of the sedimentation control measures.	<ul style="list-style-type: none"> • 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

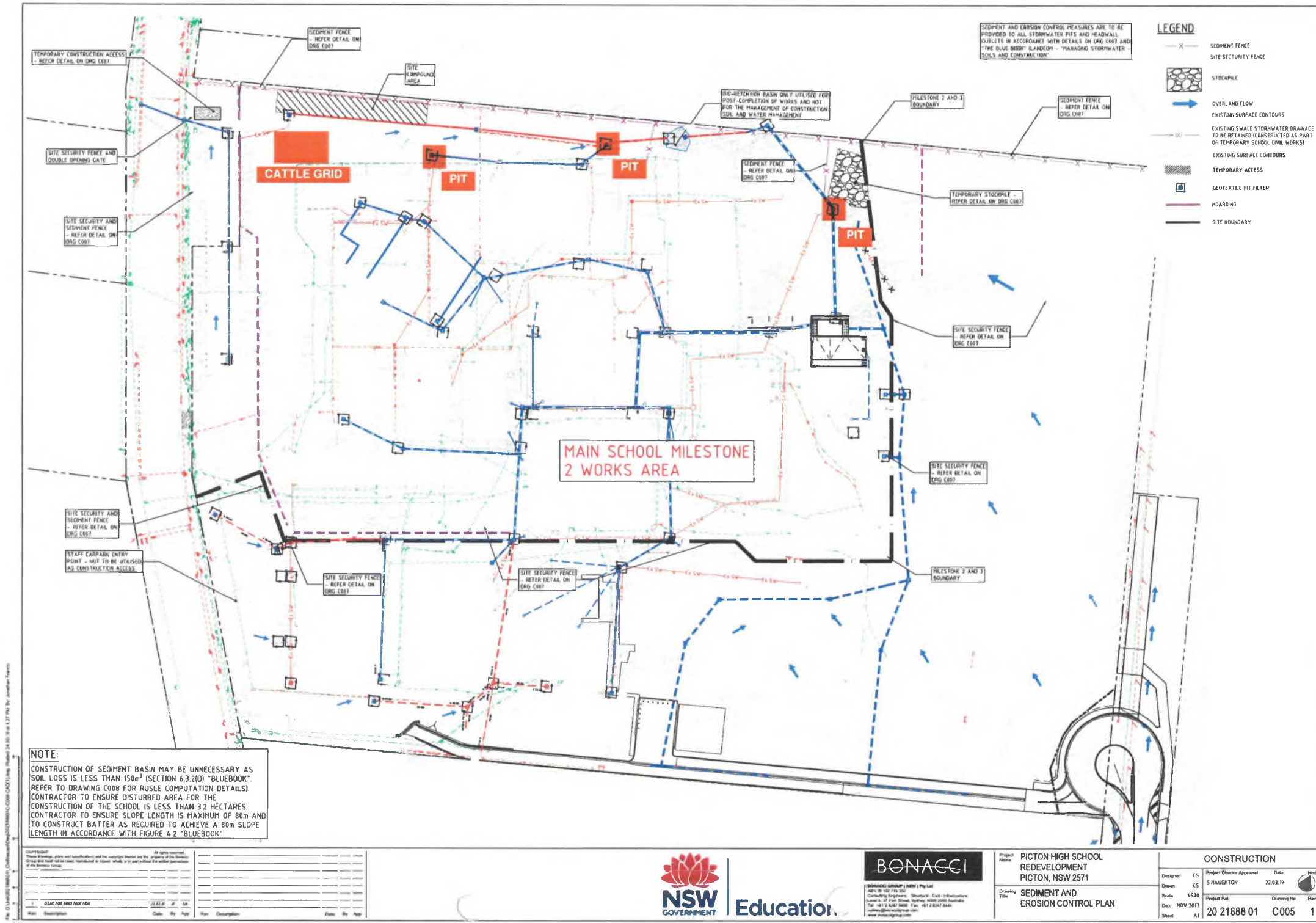
APPENDIX 5: SITE MAP – ENVIRONMENTAL REQUIREMENTS

APPENDIX 6: SEDIMENT CONTROL PLAN



SITE EVACUATION MAP & PROCEDURE

1. Alarm gets raised
2. Cease work immediately
3. Make work area safe (turn off tools/plant)
4. Evacuate to muster point (Gate 1)
5. Leave no one behind!!
6. Notify Taylor staff on arrival to muster point (Gate 1)
7. Stand with your company supervisor
8. Do not leave until told to do so
9. Do not re-enter site until told to do so



SEDIMENT AND EROSION CONTROL MEASURES ARE TO BE PROVIDED TO ALL STORMWATER PITS AND HEADWALL OUTLETS IN ACCORDANCE WITH DETAILS ON DRG C007 AND "THE BLUE BOOK" (LANDCON - "MANAGING STORMWATER - SOILS AND CONSTRUCTION")

- ### LEGEND
- SEDIMENT FENCE
 - SITE SECURITY FENCE
 - STOCKPILE
 - OVERLAND FLOW
 - EXISTING SURFACE CONTOURS
 - EXISTING SWALE STORMWATER DRAINAGE TO BE RETAINED (CONSTRUCTED AS PART OF TEMPORARY SCHOOL CIVIL WORKS)
 - EXISTING SURFACE CONTOURS
 - TEMPORARY ACCESS
 - GEOTEXTILE PIT FILTER
 - HOARDING
 - SITE BOUNDARY

NOTE:
 CONSTRUCTION OF SEDIMENT BASIN MAY BE UNNECESSARY AS SOIL LOSS IS LESS THAN 150m³ (SECTION 6.3.2(D) "BLUEBOOK". REFER TO DRAWING C008 FOR RUSLE COMPUTATION DETAILS).
 CONTRACTOR TO ENSURE DISTURBED AREA FOR THE CONSTRUCTION OF THE SCHOOL IS LESS THAN 3.2 HECTARES.
 CONTRACTOR TO ENSURE SLOPE LENGTH IS MAXIMUM OF 80m AND TO CONSTRUCT BATTER AS REQUIRED TO ACHIEVE A 80m SLOPE LENGTH IN ACCORDANCE WITH FIGURE 4.2 "BLUEBOOK".

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DRAWN FOR CONSTRUCTION		DATE	BY
Rev	Description	Date	By



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Project Name	PICTON HIGH SCHOOL REDEVELOPMENT PICTON, NSW 2571		
	Project Director	Approved	Date
Drawing Title	SEDIMENT AND EROSION CONTROL PLAN		
	Drawn	CS	S NAUGHTON
Scale	1:500	Project Ref	20 21888 01
Date	NOV 2017	Drawing No	C005
Sheet	A1	Rev	1

CONSTRUCTION			
Design	CS	Project Director	Approved
Drawn	CS	S NAUGHTON	Date
Scale	1:500	Project Ref	20 21888 01
Date	NOV 2017	Drawing No	C005
Sheet	A1	Rev	1

File: C:\Users\j16011\My Documents\Projects\2018\201806\20180604\20180604_01.dwg, Plot Date: 24/10/2017 2:27 PM, By: Jonathan Fennell

APPENDIX 7: ENVIRONMENTAL LEGAL AND OTHER REQUIREMENTS REGISTER

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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	
Protection of the Environment Operations Act 1997 (POEO Act)	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)	Environmental Inspections Compliance checks / audits against Environmental Management Plan	www.austlii.edu.au/au/legis/nsw/consol_act/poteoa1997455/	
	Schedule 1 of the POEO Act lists activities that are subject to environmental licensing.	Therefore, in most cases, the local council is the Appropriate Regulatory Authority			http://www.environment.nsw.gov.au/licensing/
	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.	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)			
	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 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 following is a summary of key sections of the Act that must be complied with:					
<ul style="list-style-type: none"> ▪ 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. ▪ S 128 Standard of air impurities not to be exceeded (air pollution) 		Environmental inspections Plant pre-start inspections and plant maintenance Compliance checks / audits against Project Environmental Management Plan	http://www.environment.nsw.gov.au/water/polltreatment.htm http://www.environment.nsw.gov.au/air/		

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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
	<ul style="list-style-type: none"> ▪ 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 	<p style="color: red; font-weight: bold;">Waste must be transported by an appropriately licenced transporter to a facility that is licenced to accept waste</p>		http://www.environment.nsw.gov.au/noise/
	<p>S 152 Offences for failure to notify of pollution incident</p> <p>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)</p> <p>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.</p> <p>Tier 3 (penalty notice – on the spot fine) \$1500 for corporation</p>	<p>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</p> <p>Damage to corporate reputation / image</p> <p>Possible exclusion from tendering for future environmental sensitive projects</p> <p>Financial Cost to company and project stake holders</p>	<p>Environmental incident reports (indicating if notification was required). Reviewed at Management Review.</p> <p>Environmental inspections Plant pre-start inspections and plant maintenance</p> <p>Compliance checks / audits against <u>Environmental Management Plan</u> Monitor compliance with DA consent</p>	

TAYLOR

ct : Picton High School

Date: 29/10/19

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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
	\$750 for individuals Failure to Notify a Pollution Incident Maximum penalty: corporations \$1,000,000; individuals \$250,000			
POEO (General) Regulation 2009	The Regulation (among other things): <ul style="list-style-type: none"> • 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=0ahUKEwiQg5ew4rzYAhWHE7wKHxJTDUUQFggNMAA&url=http%3A%2F%2Fwww.austlii.edu.au%2Fau%2Flegis%2Fnsww%2Fconsol_reg%2Fpoteor2009601%2F&usq=AQvVaw1RKZIXEv0dxWGfFhkVRVb3

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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
POEO (Clean Air) Regulation 2010	<p>This Regulation replaces the <i>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</i> and the <i>Protection of the Environment Operations (Control of Burning) Regulation 2000</i> POEO</p> <p>In relation to motor vehicles, the regulation deals with the emission of air impurities, including excessive smoke from motor vehicles.</p> <p>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.</p> <p>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</p>	<p>Keep vehicles maintained to minimise air pollution and avoid a "smoky vehicle" fine.</p> <p>Maintain plant and equipment to minimise air pollution</p> <p>General Policy at Taylor Construction Group is no burning off at site.</p>	<p>Environmental Inspection checklist Pre-start checks on plant</p>	<p>http://www.austlii.edu.au/au/legis/nsw/consol_reg/poteoar2002601/</p> <p>http://www.legislation.nsw.gov.au/fragview/inforce/subordleg+428+2010+whole+0+N?tocnav=y</p>
POEO (Noise Control) Regulation 2008	<p>This Regulation repeals and remakes, with minor amendments, the provisions of the Protection of the Environment Operations (Noise Control) Regulation 2000:</p> <ul style="list-style-type: none"> 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, 	<p>Noise emissions from machinery and activities.</p>	<p>Environmental Inspection checklist Pre-start checks on plant</p>	<p>www.austlii.edu.au/au/legis/nsw/consol_reg/poteocr2008693/</p> <p>http://www.environment.nsw.gov.au/noise/</p>

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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
	<ul style="list-style-type: none"> 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	<p>This Regulation:</p> <ul style="list-style-type: none"> 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 docketts and other records must be kept	Periodic (monthly) review of project waste docketts 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)	<p>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:</p> <ul style="list-style-type: none"> Fewer and simpler licensing categories for waste; A streamlined waste classification system; 	<p>Altered definitions of waste categories and disposal requirements (since April 2008).</p> <p>If using recovered resources (eg recycled asphalt, etc), ensure material meets threshold contaminant requirements (obtain from supplier prior to use)</p>		www.environment.nsw.gov.au/waste www.austlii.edu.au/au/legis/nsw/consol_reg/poteor2005609/ http://www.environment.nsw.gov.au/waste/classification.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
	<ul style="list-style-type: none"> New resource recovery licensing categories and resource recovery exemptions; and Clearer requirements for managing asbestos and clinical waste. <p>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.</p>	<p>includes 2011 amendment</p>		<p>http://www.environment.nsw.gov.au/waste/RRrecoveryExemptions.htm</p> <p>http://www.legislation.nsw.gov.au/sessionalview/sessional/subordleg/2011-151.pdf</p>
<p><i>Protection of the Environment Operations (Underground Petroleum Storage Systems Regulation 2008)</i></p>	<p>Regulation requires that underground petroleum storage tanks must not be commissioned unless it has been properly designed, installed and equipped, and integrity test performed.</p> <p>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.</p> <p>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</p>	<p>The regulation generally will only apply to TPG if it owns or operates sites with Underground Petroleum Storage Systems (UPSSs).</p> <p>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</p>	<p>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</p>	<p>www.austlii.edu.au/au/legis/nsw/consol_reg/poteopssr2008983/</p> <p>http://www.environment.nsw.gov.au/clm/upss.htm</p>
<p><i>Contaminated Land Management Act 1997</i></p> <p><i>Contaminated Land Management Amendment Act 2008</i></p>	<p>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:</p> <ul style="list-style-type: none"> Declare an investigation site and order and investigation 	<p>Environmental Hygienist may be engaged to provide advice , reports and monitor activities when undertaking work on contaminated sites is required .</p>	<p>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.</p>	<p>http://www.austlii.edu.au/au/legis/nsw/consol_act/clma1997238/</p> <p>http://www.austlii.edu.au/au/legis/nsw/consol_act/clmaa2008318/sch1.html</p>

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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
	<ul style="list-style-type: none"> Declare a remediation site and order remediation to take place Agree to a voluntary proposal to investigate or remediate a site 			http://www.environment.nsw.gov.au/clm/
<i>Contaminated Land Management Regulation 2008</i>	<p>This Regulation prescribes a number of matters for the purposes of the <i>Contaminated Land Management Act 1997</i>, including:</p> <ul style="list-style-type: none"> 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/
<i>Environmentally Hazardous Chemicals Act 1985</i>	<p>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.</p>	<p>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.</p> <p>It is unlikely that Taylor Construction Group activities would generate hazardous wastes covered by a CCO</p>	<p>Measures for identification, handling, disposal of hazardous wastes are in the Project Environmental Management Plan.</p>	http://www.austlii.edu.au/au/legis/nsw/consol_act/ehca1985373/
<i>Environmentally Hazardous Chemicals Regulation 2008</i>	<p>This Regulation:</p> <ul style="list-style-type: none"> 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. 	No relevance.		

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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
<i>Pesticides Act 1999</i>	<p>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:</p> <ul style="list-style-type: none"> • 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. <p>DECC may make pesticide control orders which prohibit use or possession of restricted pesticides</p>	<p>Generally pest control would be undertaken by specialist contractors.</p> <p>If pesticides are applied by TPG personnel, stringent storage, handling and record keeping requirements apply. Refer to the full Act and Regulations</p>	<p>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</p>	<p>www.austlii.edu.au/au/legis/nsw/consol_act/pa1999120/</p> <p>http://www.environment.nsw.gov.au/pesticides/</p>
<i>Pesticides Regulation 1995</i>	<p>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.</p>	As above	As above	<p>www.austlii.edu.au/au/legis/nsw/consol_reg/pr1995211/</p>
<i>Environmental Planning and Assessment Act 1979</i>	<p>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:</p>	<p>Development Approval / Consent required prior to construction as per EP&A Act and as detailed in LEPs.</p>	<p>Compliance audits / checks against development consent conditions (likely to be done by client)</p>	<p>www.austlii.edu.au/au/legis/nsw/consol_act/epaaa1979389/</p>

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Legislation	Key Requirements	Relevance to Taylor Construction Group	Mechanism for Evaluating Compliance	Link to legislation and relevant web sites
(EP&A Act)	<ul style="list-style-type: none"> 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. <p>Also has Planning instruments such as Local Environmental Plans (LEPs)</p>	Need to comply with Conditions of Consent once granted		
Fisheries Management Act 1994	<p>The primary aim of this Act is to conserve, develop and share fisheries resources of NSW to benefit present and future generations. To do this the Act:</p> <ul style="list-style-type: none"> Provides Fishery Management Strategies for commercial and recreational purposes; Protects marine flora and fauna (eg. Mangroves); Describes dredging and reclamation approval process; Prevents the sale or possession of noxious fish and marine vegetation; Has provision for penalties to be issued for breaches of the requirements of this Act. 	The Act applies to works that involve dredging or working in water bodies including estuaries, lakes, intertidal zones etc.:	If dredging or other activities in fisheries are undertaken, 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/fma1994193/
Marine Pollution Act 1987 Marine Pollution Regulation 2006	<p>This Act and the <i>Marine Pollution Amendment Regulation 2006</i> oblige marine operations to:</p> <ul style="list-style-type: none"> Prevent pollution of marine environment by spillages from ships and transfer operations; Report/record oil or noxious liquid discharges from ships. <p>Schedule 4 of the regulation provides Standards for treated sewage from vessels (faecal coliform, suspended solids and BOD)</p>	Relevant only when dredging or working in a marine environment.	If dredging or work in the marine environment is anticipated, the measures for monitoring compliance will be documented in the Project Environmental Management Plan .	http://www.austlii.edu.au/au/legis/nsw/consol_act/mpa1987200/
Waste Avoidance and Resource Recovery Act	This Act promotes waste avoidance and resource recovery by:	Waste is generated during construction. The principles of the Act are applied to	Regular environmental inspections using standard checklist	

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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
2001	<ul style="list-style-type: none"> 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. 	<p>all aspects of construction to reduce impacts from waste.</p> <p>A Waste Management Plan may be required to be prepared as part of conditions of consent.</p>	Audit against Waste Management Plan (if applicable) or against Project Environmental Management Plan	<p>www.austlii.edu.au/au/legis/nsw/consol_act/waarra2001364/</p> <p>http://www.environment.nsw.gov.au/waste/</p>
Threatened Species Conservation Act 1995	<p>This Act outlines the protection of threatened species, communities and critical habitat. An independent Scientific Committee determines which species, populations and ecological communities should be listed as endangered, vulnerable or extinct, and also determines key threatening processes.</p> <p>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.</p>	<p>Construction activities may be undertaken in areas where threatened species, communities and critical habitat exist.</p> <p>The presence of these should be identified by the Environmental Impact Assessment process prior to construction – usually identified by the client</p>	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.	<p>www.austlii.edu.au/au/legis/nsw/consol_act/tsca1995323/</p> <p>http://www.environment.nsw.gov.au/threatenedspecies/</p>
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.		<p>www.austlii.edu.au/au/legis/nsw/consol_act/nva2003194/</p> <p>http://www.environment.nsw.gov.au/vegetation/</p>
Noxious Weeds Act 1993	<p>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:</p> <p>Class 1 – State Prohibited Weeds: must not be introduced/become established in NSW;</p> <p>Class 2 – Regionally Prohibited Weeds: must not be introduced or become established in parts of NSW;</p> <p>Class 3 – Regionally Controlled Weeds: area that these weeds occupy must be reduced;</p>	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	<p>www.austlii.edu.au/au/legis/nsw/consol_act/nwa1993182/</p> <p>http://www.environment.nsw.gov.au/pestsweeds/</p>

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
	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.			
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: <ul style="list-style-type: none"> • 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/ http://www.environment.nsw.gov.au/licences/
	An Aboriginal Heritage Impact Permit (AHIP) is required for any activity likely to have an impact on Aboriginal objects or places.			http://www.environment.nsw.gov.au/nswcultureheritage/dec_consultation_080103_ReviewInterimRequirementsForAHIP.htm
National Parks and Wildlife Regulation 2002	This regulation governs various activities under the <i>National Parks and Wildlife Act 1974</i> , including: <ul style="list-style-type: none"> • the regulation of the use of national parks and other areas administered by the NPWS (Part 2) • the preservation of public health in Kosciuszko National Park (Part 3) • licences and certificates (Part 4) • the protection of fauna (Part 5) 	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_reg/npawr2002338/

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 regulation replaces the former NPW (Land Management) Regulation 1995, the NPW (Administration) Regulation 1995 and the NPW (Fauna Protection) Regulation 2001.			
Heritage Act 1977	<p>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.</p> <p>The Act prohibits the demolition, damage or development of or around any heritage item without approval from the Heritage Office.</p>	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	<p>The Heritage Regulation 2005:</p> <ul style="list-style-type: none"> 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	<p>An Act consolidating water rights, water and drainage and artesian wells. Provisions include:</p> <ul style="list-style-type: none"> 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	The <i>Water Management Act 2000</i> is the main piece of water legislation in NSW and governs:	Approvals may be required to undertake water supply works, drainage works or	If water is extracted from waterways, this would be addressed in the EIA and PEMP.	

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
Management (General) Regulation 2004	<ul style="list-style-type: none"> Extraction of water from waterways and bores The construction of water storage and supply structures Development or building within the proximity of waterways A licensing system established under the Water Management Act 2000 allows for regulated usage of water resources <p>The WMA Act consolidates the Water Act 1912 and the Rivers and Foreshores Improvement Act 1948.</p>	floodplain works	Audits of the PEMP would be undertaken to determine compliance	http://www.austlii.edu.au/au/legis/nsw/consol_act/wma2000166/
Rivers & Foreshore Improvement Act 1948	<i>This Act has been repealed and is replaced by the Water Management Act 2000</i>	Nil - repealed	N/A	
Commonwealth Legal Requirements				
Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth Act) (EPBC Act)	<p>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:</p> <ul style="list-style-type: none"> 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. <p>Permits are required under the EPBC Act for:</p> <ul style="list-style-type: none"> 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. 	<p>Approvals may be required when working in areas that may have matters with national significance. Examples may include:</p> <ul style="list-style-type: none"> Work on Commonwealth land that may have a significant impact on the environment <p>Working in areas that are listed as:</p> <ul style="list-style-type: none"> World Heritage property National Heritage places Listed wetlands (Ramsar) Threatened species or communities Migratory species Nuclear actions Marine Environments 	<p>Specific requirements for compliances should be addressed in Environmental Impact assessments and Project Environmental Management Plans. Audits and inspections would be undertaken against the stated requirements.</p>	http://www.austlii.edu.au/au/legis/cth/consol_act/epabca1999588/

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 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.

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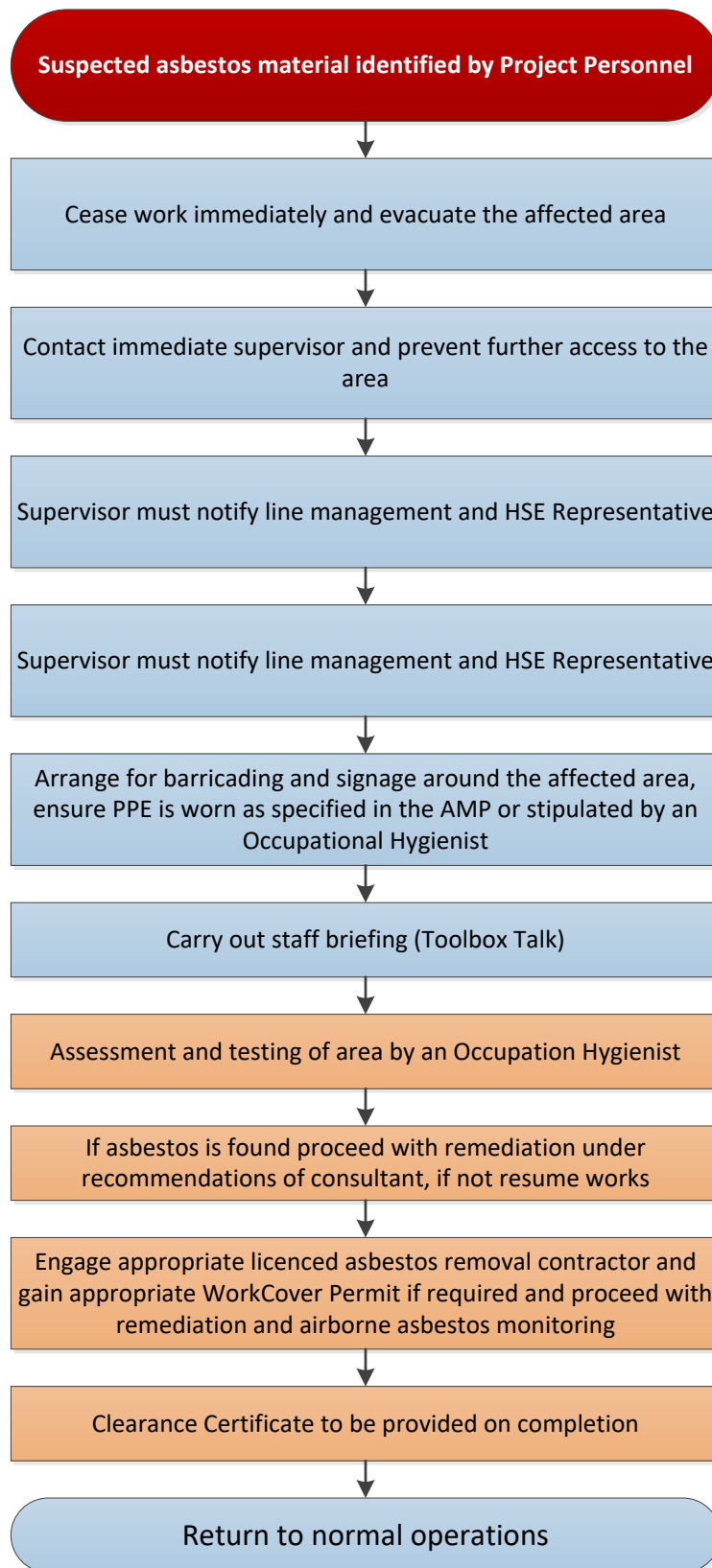


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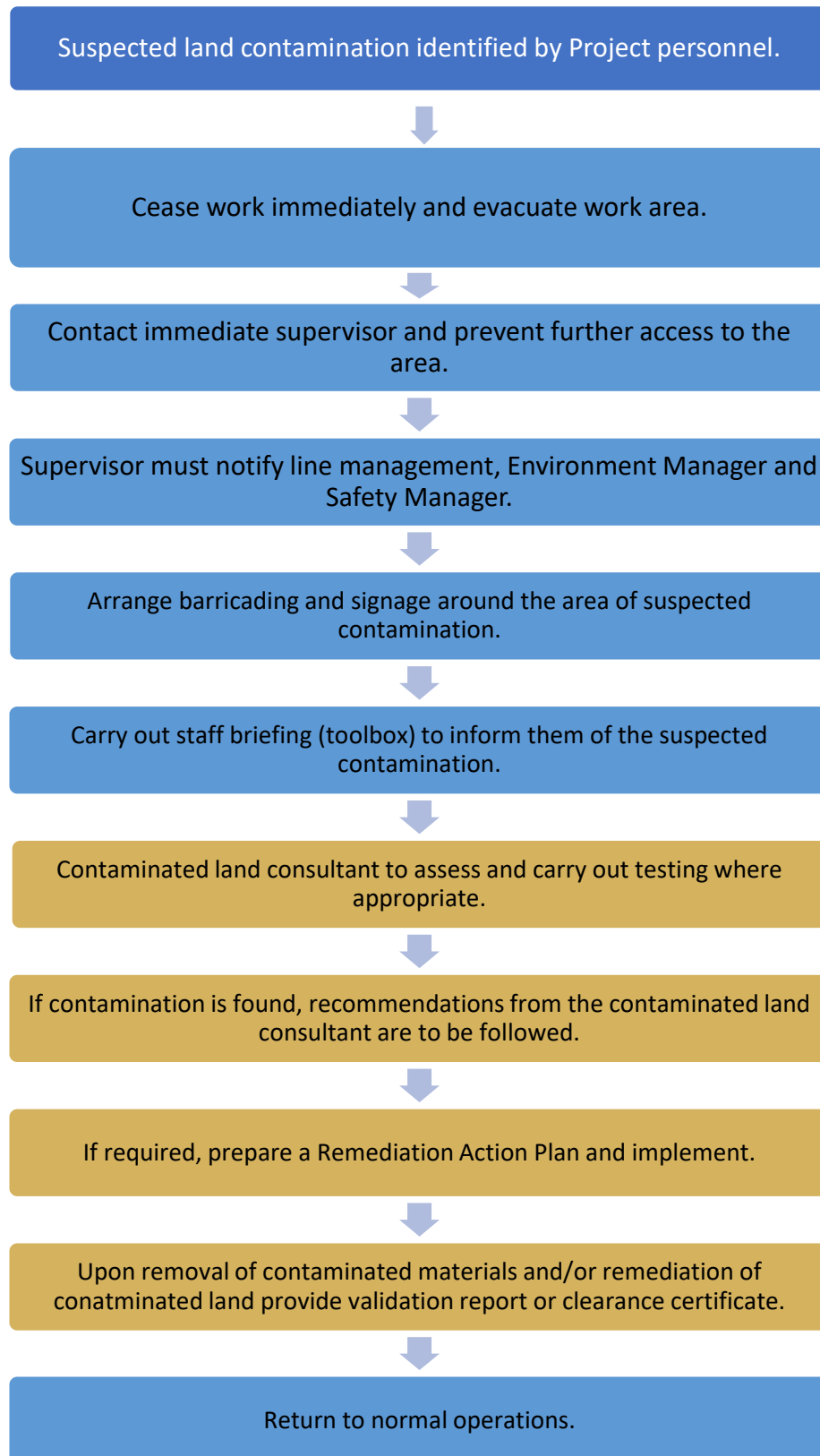
Appendix D Unexpected Finds Protocol for Contamination and Associate Communications Procedure

Unexpected Asbestos Find Protocol (UAFP)



Blue sections to be performed by project personnel.
Orange sections to be performed by others.

Unexpected Find Protocol (UFP)



Blue sections to be performed by project personnel.
Orange sections to be performed by others (specialists).

Appendix E Traffic and Pedestrian Management Sub-Plan

CONSTRUCTION TRAFFIC AND PEDESTRIAN MANAGEMENT PLAN (MAIN WORKS)

PREPARED FOR DEPARTMENT OF EDUCATION

4 April 2019



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REVISION SCHEDULE

Rev No.	Date	Description	Signature or Typed Name (documentation on file)			
			Prepared by	Checked by	Reviewed by	Approved by
1	19.03.2019	Draft v1				
2	26.03.2019	Draft v2				
3	29.03.2019	Draft v3				
4	04.04.2019	Final v1	KM	DA	DA	KM

Department of Education

Construction Traffic and pedestrian Management Plan (MAIN WORKS)

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APPENDICES

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Appendix B	SIDRA Results
Appendix C	Vehicle Swept Path Analysis
Appendix D	Traffic Control Plans

1. Introduction

The Construction Traffic and Pedestrian Management Plan (CTPMP) provides a review of the traffic, parking and pedestrian implications of the traffic management measures proposed for the Main Construction Works of Picton High School.

The planned construction works will see replacement of a significant portion of the existing buildings, with any retained buildings to be re-purposed and refurbished.

The intended works to be carried out are located within the site. The construction works will involve the following:

- Main Construction Works:
 - Removal of asbestos of the existing buildings;
 - Demolition of the existing buildings; and
 - Construction and refurbishment of the new buildings.
- Removal of classroom demountables.

The proposed dates of the main construction works are estimated to be between April 2019 to August 2020. The Construction Traffic and Pedestrian Management Plan has been prepared to minimise any disruptions to the school operations.

This Construction Traffic and Pedestrian Management Plan (CTPMP) is based on the information available for the proposed construction works at the time of writing. However, it cannot be guaranteed that the specific methodology described herein is used at the time of construction. Any changes are to be incorporated into the appropriate Construction Traffic and Pedestrian Management Plans prior to the commencement of those works.

The Construction Traffic and Pedestrian Management Plan is to be submitted to the relevant authorities prior to the commencement of work.

1.1 Report Scope

The Construction Traffic and Pedestrian Management Plan (CTPMP) covers the traffic management concepts behind the construction of the School upgrades, and the Picton High School operations during the construction works.

2. Existing Transport Environment

2.1 Work Area

Figure 2-1 shows the location of construction work area of Picton High School and the surrounding road network.



Figure 2-1: Construction Work Area

Picton High School is located on the eastern side of Argyle Street, approximately 100 metres north of Wonga Road. The site has an area of 5.69 hectares. Existing vehicular access to the site is provided via separate entry and exit driveways off Argyle Street, with the northern access accommodating entry movements and the southern access accommodating exit movements. The site also has frontage to Wonga Road and a partially formed paper road along the eastern site boundary.

Key features of the site and its surrounds are as follows:

- Established residential use occupies the land to the north of the site;
- Land to the west, south and east is predominantly undeveloped at present;
- Some commercial and industrial uses are located along Wonga Road, including the Picton Bus depot which is the company operating the school services; and
- A paper road extension of Wonga Road extends about half way across the rear (eastern) boundary of the site.

2.2 Existing Road Environment

Argyle Street is identified as a Regional Classified Road in the vicinity of the site and is managed by Wollondilly Shire Council. It runs in a north-south alignment and has a carriageway width of 13.0 metres kerb to kerb, accommodating one lane of traffic in each direction and parallel parking on both sides of the road.

Continuous double white centreline markings are established across the whole of the site frontage. In effect, these impose a no right turning restriction either to or from the driveway crossings. These current controls are somewhat impractical as established and evidence from site observations are that the control is ignored in the present environment.

A school speed zone control is imposed along Argyle Street that reduces the permissible speed limit to 40km/h between 8:00am to 9:30am and 2:30pm to 4:00pm on school days, extending from Wood Street in the north to a location about 90 metres north of Wonga Road. This covers the entire school frontage area and extends north over the marked kerbside parking environment.

The on-street parking controls on Argyle Street comprises of the following elements:

- On the western side of Argyle Street, five spaces with a P2 (2 minute) parking restriction between 8:00am to 9:30am and 2:30pm to 4:00pm;
- On the immediate school frontage, a P2 (2 minute) parking restriction drop-off zone of about 50 metres in length, catering for up to about eight vehicles at a time;
- A bus layover area is established about 20 metres north of the school's northern driveway crossing on the east side of Argyle Street. Its defined operating times are: 8:30am to 9:30am and 3:00pm to 4:00pm on school days; and
- Otherwise, generally time unrestricted parking controls are provided.

Wonga Road is a local road that runs in an east-west alignment extending from Argyle Street and runs in a north-south alignment to about the eastern boundary of the site. It has a carriageway width of 13.0 metres kerb to kerb and accommodates one lane of traffic in each direction. Unrestricted parking is provided on both sides of the road.

Stop sign in Wonga Road control its junction with Argyle Street. Argyle Street has a painted right turn bay and left turn deceleration lane which facilitate access to Wonga Road.

On-road cycling is currently allowed within the carriageway of Argyle Street, under the school speed zone-controlled environment. There are no cycle facilities provided along Wonga Road.

A continuous concrete footpath is established along Argyle Street on the school side of the road. It extends north from the southern school boundary connecting the school with the Picton town centre. No pedestrian facilities are provided along Wonga Road.

2.3 Operating of Existing Road Systems

2.3.1 Existing Traffic Movements

Turning movement surveys were commissioned on Thursday 26 July 2018, between 7:00am to 10:00am and 2:00pm to 5:30pm, at the intersection of Argyle Street and Wonga Road.

The results of the intersection traffic surveys for the morning and evening peak periods are presented in Figure 2-2.

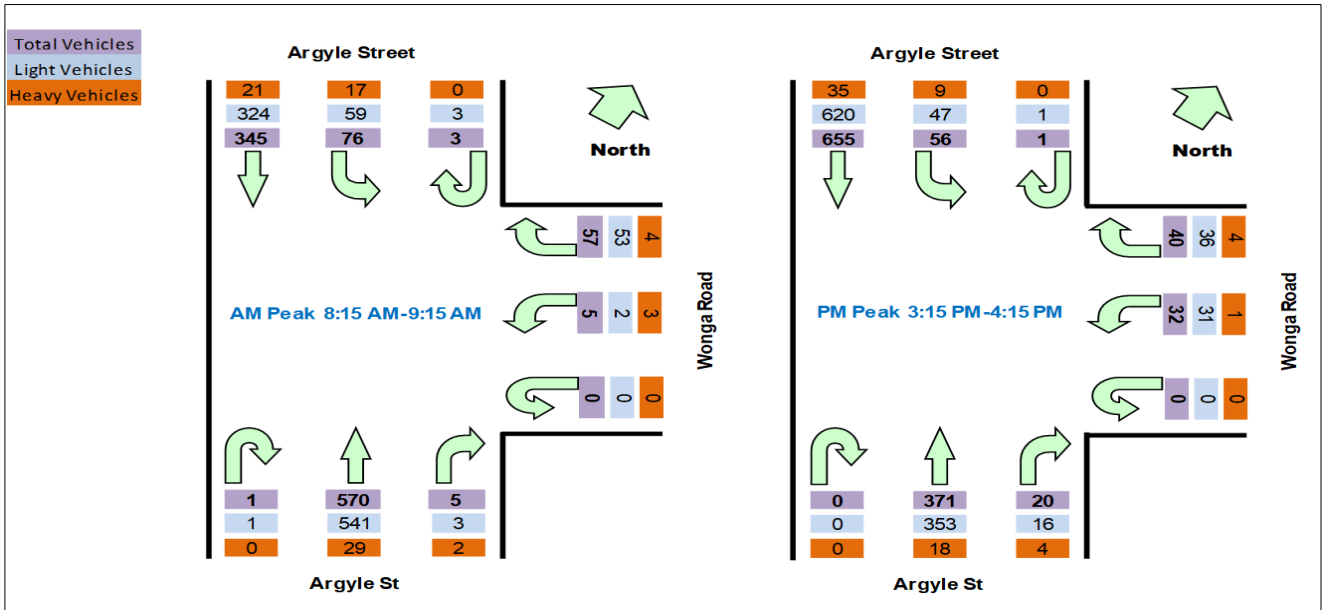


Figure 2-2: Morning and Evening Peak Periods – Vehicle Turning Movements

The survey results indicate that Wonga Road currently carries a low level of traffic, with 143 and 148 vehicle movements (inbound and outbound movements) recorded in the morning and evening peak periods, respectively.

2.3.2 Existing Intersection Performance

An analysis of the operation of the critical intersections within the study area was carried out using the SIDRA computer modelling program for the existing intersection traffic volumes and layouts.

Stantec has assessed the performance of the intersections using the SIDRA Intersection Analysis Software (V8). Performance criteria for intersections are based on the RTA (RMS) Guide to Traffic Generating Developments. A qualitative rating and its corresponding Level of Service (LoS) are applied to the average delay per vehicle as shown in Table 2-1.

Table 2-1: Level of Service Criteria for Intersections

Level of Service (LoS)	Average Delay per Vehicle (seconds)	Traffic Signals, Roundabouts
A	Less than 15	Good operation
B	15 to 28	Good with acceptable delays and spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity; at signals incidents will cause excessive delays

Note: For signals, average delays per vehicle are for the intersection as a whole. For Roundabouts / Give Way / Stop Signs, average delay per vehicle is for the worst movement.

The existing intersection layout of Argyle Street and Wonga Road is shown in Figure 2-3.



Figure 2-3: Existing Intersection Layout of Argyle Street and Wonga Road

Table 2-2 gives a summary of the SIDRA results for the current volumes applied to the existing intersection configuration. The SIDRA outputs are included in Appendix B.

Table 2-2: Summary of SIDRA Outputs for Wonga Road and Argyle Street

Peak Time	Average Delay (Secs)	Level of Service (LoS)
Morning Peak	14.5	A
Evening Peak	18.4	B

The current intersection configuration of Wonga Road and Argyle Street is operating at an excellent Level of Service (LoS) A and B for the morning and evening peak periods, respectively. The results suggest that the current intersection configuration has ample capacity to cater for the construction vehicles and construction during the construction of the Picton High School main works.

2.4 Existing Parking Environment

A detailed on-street parking surveys were commissioned on Thursday 26 July 2018 along Argyle Street and Wonga Road. Figure 2-4 shows the extent of the parking survey locations.



Figure 2-4: Parking Survey Locations on Argyle Street and Wonga Road

The existing parking restrictions and capacity along Argyle Street and Wonga Road is presented in Table 2-3.

Table 2-3: Existing Parking Restrictions and Capacity

Street Name	Parking Restrictions	Parking Capacity
Argyle Street (west)	1P 8:30am to 6:00pm Monday to Friday 8:30am to 12:00pm Saturday	21
	Unrestricted Parking	36
	P2 min 8:30am to 9:30am, 2:30pm to 4:00pm School Days	5
Argyle Street (east)	Unrestricted Parking	37
	P2 min 8:30am to 9:30am, 2:30pm to 4:00pm School Days	6
	P15 min 8:30am to 9:30am, 2:30pm to 4:00pm School Days	6
	Bus Zone 8:30am to 9:30am, 3:00pm to 4:00pm School Days	1
Wonga Road (north)	Unrestricted Parking	32
Wonga Road (south)	Unrestricted Parking	40

A summary of the parking survey results is shown in Figure 2-5, with key findings from the survey are summarised below:

- There is a maximum of 184 on-street parking spaces along Argyle Street and Wonga Road;
- 145 of the 184 on-street parking spaces are unrestricted parking;
- There was a maximum of 45 vehicles parked during the morning peak period between 8:00am to 9:30am;
- There was a maximum of 54 vehicles parked during the evening peak period between 2:00pm to 3:30pm; and
- The peak car parking demand occurred at 2:30pm with 54 out of 184 car parking spaces occupied, indicating a 70.7% vacancy.

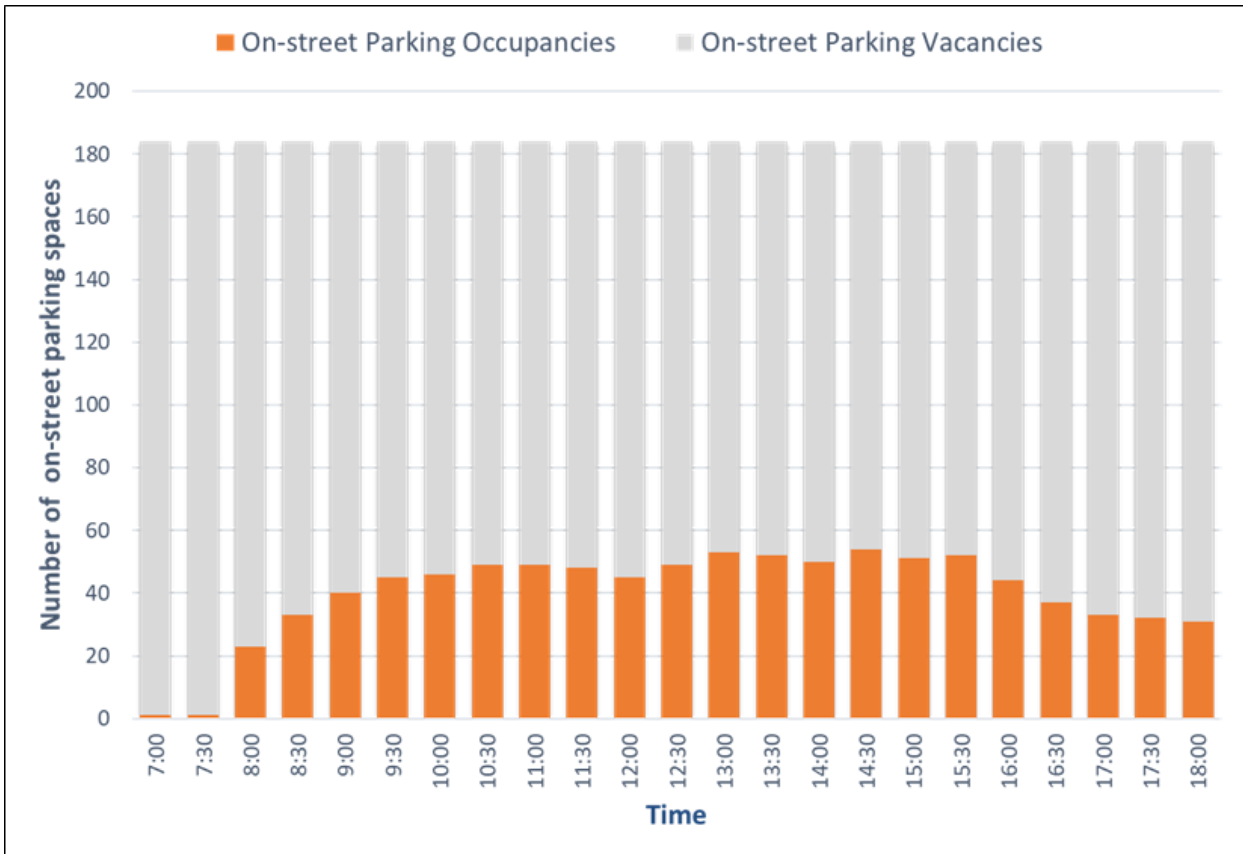


Figure 2-5: Argyle Street and Wonga Road On-Street Parking Demand

In summary, the parking survey results indicate that there is ample spare on-street parking capacity along Argyle Street and Wonga Road to accommodate for the Construction workers and School Staff during the constructions works.

2.5 Sight Distance

The existing sight distances have been measured on-site. These measurements are summarised in **Table 2-4**.

Table 2-4: On-site Site Distance Measurements

Intersection	Sight Distance	Photos	Austrroads Approach Sight Distance (ASD)	Comment
Wonga Road and Argyle Street	To the South 267 metres		Design speed of 70km/h = Approach Sight Distance of 92 metres	The approach sight distances comply with the Austrroads guide to Road Design Part 4A – Unsignalized and Signalised intersection
	To the North 220 metres		Design speed of 40km/h = Approach Sight Distance of 40 metres	

Based on the Austrroads Guidelines and the measurements taken on-site, there is acceptable sight distances at the intersection of Wonga Road and Argyle Street.

2.6 Travel Mode Survey

A travel mode surveys have been undertaken for number of students and staff at the School. The surveys involved a sample of the school population. These were undertaken on 30th June 2017.

The travel mode survey results identified the following travel mode distributions in Table 2-5.

Table 2-5: Travel Mode Survey Results

Mode of Travel	Student Totals	Student Mode Split (%)	Teachers Totals	Teacher Mode Split (%)
Walk	13	6.2%	1	1.6%
Bus	140	66.7%	0	0.0%
Train	1	0.5%	0	0.0%
Bicycle	1	0.5%	0	0.0%
By car - dropped off in the morning	46	21.9%	0	0.0%
Passengers in another student's car	2	1.0%	0	0.0%

Mode of Travel	Student Totals	Student Mode Split (%)	Teachers Totals	Teacher Mode Split (%)
Passengers in a car driven by a member of staff	2	1.0%	2	3.2%
Car as a driver	5*	2.4%	59	95.2%
Other	0	0.0%	0	0.0%
Total respondents (sample size)	210	100.0%	62	100.0%

Note: *The number of students driving has been estimated based on the student parking demand due to Year 12 students not being surveyed on the survey date.

The following characteristics from the Travel Mode Survey are noted below:

- About 67% of all student used buses;
- Student drop-off by car accounted for 22% of arrivals;
- Accessible (walking/cycling) modes accounted for 6.2% of student arrivals, noting that cycling represents a very low (0.5%) utilisation. This is perhaps a function of the wide and rural nature of the area serviced; and
- By contrast, 98.4% of the staff arrived by car, either as the driver or passenger.

3. Construction Works and Operations (Main Works)

3.1 Development Proposal

The proposed construction works will see replacement of a significant portion of the existing building stock, with any retained buildings to be re-purposed and refurbishment. It is to include the following

- Removal of asbestos of the classrooms;
- Demolition of the existing classrooms; and
- Construction of the new classrooms etc.

3.2 Staging of Construction Works

The required construction works is separated into two stages. A breakdown of the construction works, and duration is provided Table 3-1.

Table 3-1: Staging of Construction Works

Construction Stages	Construction Works	Duration
Stage 1 Removal of asbestos	Removal of asbestos from existing buildings	April 2019 to May 2019
Stage 2 Demolition	Consists of demolition of some of the existing single storey buildings, civil works and earthworks levelling to accommodate prefabricated buildings and associated services, and the delivery of classroom demountables;	May 2019 to June 2019
Stage 3 Construction	Construction of new buildings including services and the construction of the surrounding soft and hard landscaping works	July 2019 to August 2020

The main constructions works is estimated to commence in April 2019, with completion of the overall construction work programme forecast for August 2020.

3.3 Constructions Times

The construction works (including excavation, demolition, construction and deliveries of materials and equipment etc) will be carried at the following times:

- Monday to Friday 7:00am to 5:00pm; and
- Saturday from 8:00am to 1:00pm.

Picton High School will remain in operation throughout the construction works.

3.4 Construction Volumes

3.4.1 Truck movements

The maximum sized design vehicle for the project is a truck and dog / semi-trailer with 40ft trailer, although various types of trucks will visit the site.

The main construction works are to generate daily volumes of heavy vehicle movements from April 2019 to August 2020. All loading is proposed to occur within the site.

Table 3-2 identifies the relevant stages of construction and the estimated maximum number of truck movements per day.

Table 3-2: Construction Truck Movements

Construction Stage	Estimated Maximum Number of Trucks Per Day
Stage 1 – Removal of Asbestos	To be confirmed
Stage 2 – Demolition	Up to 40 trucks per day
Stage 3 - Construction	Up to 5 trucks per day

The number of construction vehicles to service the site is up to 40 trucks per day throughout Stages 1 and 2, for a duration for 3 months as detailed in Table 3-1. This is equivalent to four to five heavy vehicle movement every hour. This is not forecast to occur for extended periods

It is expected that there will be a reduction in construction trucks during 'Stage 3 – Construction' of up to 5 trucks per day.

The proposed turning area is provided on-site and will be used by construction trucks to U-turn and head back to Argyle Street in a forward direction, as shown in Appendix C.

3.4.2 Construction Worker Vehicle Movements

It is estimated that up to 120 contractors are to be on-site at any one time.

The movements generated by construction workers are expected to be primarily accessing the work area in the morning and departing the site in the evening. It has been assumed that the site will generate up to 120 vehicle movements in the morning and evening periods, with a one-person vehicle occupancy.

It should be noted contractors start working at 7:00am and finish at 5:00pm, and may start / finish different times of the day, depending on the construction works that is involved at the time. The construction works is also proposed to operate on Saturdays from 8:00am to 1:00pm.

Based on the above, the traffic generated by construction workers will occur outside of the morning and evening peak period of the School. Given the road classifications and associated traffic volumes of the nearby roads and intersections, it is considered that the road network is able to readily accommodate the expected traffic volumes generated by the construction workers, further traffic impact assessment is provided in Section 3.19.

3.5 Construction Vehicles and Equipment

The maximum sized design vehicle for the project is a truck and dog, although various types of trucks will visit the site. At most, typical construction activities are expected to generate up to 5 trucks per day for the duration of the construction period (14 months). This is equivalent to one truck movement every 2 hours.

Furthermore, the types of vehicles used on the project may include, but not be limited to:

- Excavator;
- Bobcats;
- Crane;
- Roller; and
- Watercarts;

3.6 Vehicle Movement Plan

It is proposed that construction vehicles will generally:

- Arrive at the site travelling from Argyle Street;
- Enter the site via the northern access.
- Unload and load materials / equipment's within the site; and

- Depart the site through the northern access into the bus area and exiting via the Southern Access to Argyle Street.

The proposed construction vehicle movement plan accessing and leaving the site is shown in Figure 3-1



Figure 3-1: Construction Vehicle Movement Plan ¹

It should be noted truck movements will be restricted to travel through the bus area during the morning and afternoon school peak periods to reduce the traffic conflict between buses and construction vehicles. It is noted that subcontractors and supplier vehicle movements will be limited during peak times as per the contract agreement.

Construction trucks heading to the waste facilities will also head north or south along Argyle Street. The location of the waste facilities are as follows, with details provided in Table 3-3:

- SUEZ Spring Farm Resource Recovery Park; and
- Bargo Waste Management Facility.

An overview of the construction truck routes connecting the State roads and the waste facility locations is shown in Figure 3-2.

¹ Source: <https://maps.spookfish.com>

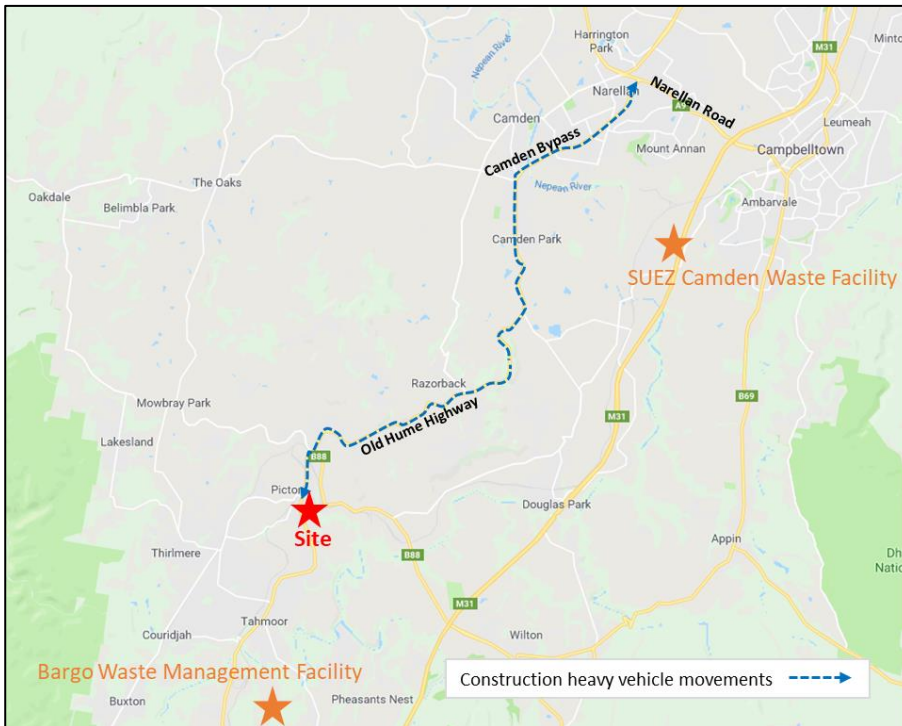


Figure 3-2: Construction Movements (Overview)²

The details of the waste facilities are provided in Table 3-3.

Table 3-3: Location of Waste Facilities

Local Government Area (LGA)	Facility Name	Waste Type	Contact Details
Camden Council	Camden Council SUEZ Spring Farm	<ul style="list-style-type: none"> • Building materials • Batteries (only vehicles batteries – lead acid batteries) • Paint/oil (waste motor oil up to 20L per customer) • Cardboard • e-waste • glass • garden waste • mattresses • metal • food waste • paper • plastic • white goods • wood • tyres • rubber 	275 Richardson Road, Spring Farm NSW 2570 Ph. 1300 651 116
Wollondilly Shire Council	Bargo Waste Management Facility	<ul style="list-style-type: none"> • Commercial • Garden Organics • Bricks • Ceramics • Concrete • Soil/clay • Timber – Untreated 	Anthony Road, Bargo NSW 2574 Ph. 0419 490 599

Note: Details provided from the Waste Management Plan prepared by SMEC

² Source: Google maps (<https://www.google.com/maps>)

3.7 Driver Code of Conduct

Management of vehicular access to and from the site is essential in order to maintain the safety of the general public as well as the labour force. The following code is to be implemented as a measure to maintain safety within the site:

- Utilisation of only the designated transport routes;
- Drivers to operate during the specified working hours;
- Drivers to maintain a sufficient distance from any temporary barriers that may be implemented around trees that form part of the endangered plant community; and
- Construction vehicle movements are to abide by finalised schedules as agreed by the relevant authorities.

3.8 Construction Permits

3.8.1 Works Zone

An application for a works zone will be submitted to Council for approval, if required.

This would be a separate application to the Construction Traffic Management Plan.

3.8.2 Road Occupancy License

A Road Occupancy Licence 'ROL' will be submitted to the relevant authorities when works are within the road carriageway. A ROL is required for any activity likely to impact on traffic flow, even if that activity takes place off-road. Council are the assessing authority depending on the responsibility.

3.8.3 Other Permits

Any other relevant permits will be applied to Council prior to the Construction works. This may include the following:

- Public Space – Permits the occupation of the footpath area only
- Stand Plant – Permits the occupation of traffic lane/parking lane/footpath area on a day to day basis, does not permit the closure of a road.
- Hoarding – Where Class A (i.e. site fencing) or B (i.e. overhead footpath protection) hoarding is to be located on public property.

3.9 Access to Adjacent Properties

The existing driveways located on Argyle Street and Wonga Road will not be impacted by the construction activities. It is advised the developments on surrounding the site will be contacted by the contractors to ensure access to the site will remain open or provided with an alternative access.

3.10 Construction Environmental Management Plan (CEMP)

3.10.1 Project Environmental Duties

All construction staff working on the Picton High School Construction Works will have the following environmental obligations:

- Minimise pollution of land, air and water;
- Use pollution control equipment and keep it in proper working order;
- Preserve the natural and cultural heritage environment;
- Minimise the occurrence of offensive noise;
- Be a good neighbour to surrounding land users;

- Keep the community informed of Project milestones, upcoming activities and duration of relevant aspects of the works;
- Use equipment with noise control features where available and ensure that it is properly maintained; and
- Take all feasible and reasonable steps to ensure compliance with the requirements of this plan.

3.10.2 Environmental Management Plan

As a minimum, it is proposed to install or impose the following operational environmental measures as part of the proposed traffic operations:

- Pedestrian fencing is to be installed around the site to prevent inadvertent / unauthorised pedestrian access;
- A wheel-wash is to be installed at the site egress points for truck cleaning prior to departure when there is exposed ground on the site; and
- All excavated material is to be covered prior to leaving the site to prevent aerial dispersal onto the road network.

3.11 Traffic Control Plan

A Traffic Control Plan (TCP) has been developed for the major construction works, as shown in Appendix D. This will be used as required during the construction phases, if required.

The Traffic Control Plans has been designed in accordance with the Australian Standards and the Roads and Maritime Services (RMS) Traffic Control at Work Sites Manual and prepared by an RMS Accredited Traffic Control Plan Developer.

3.12 Methods of Communicating Change

School Infrastructure NSW has a Community Liaison Officer specifically in charged with this responsibility. The communication will be in accordance with the Community Communication Strategy submitted to the Secretary Planning in accordance with SSD 8640 Consent Condition B10.

3.13 Site Inductions

The requirements of this Construction Traffic and Pedestrian Management Plan must be followed. The site manager will ensure that site inductions occur on a regular basis or as deemed necessary.

3.14 Key Personnel

The key Construction Traffic and Pedestrian Management Plan personnel with contacts details are provided in Table 3-4

Table 3-4: Contact Details

Contact Name	Contact Number	Email	Company
Neil Doney	0434 957 439	neild@taylorau.com.au	Taylor
Mick Upston	0402 751 324	micku@taylorau.com.au	Taylor
Kirk Martinez	0414 059 849	Kirk.martinez@stantec.com	Stantec
Desmond Ang	-	Desmond.ang@stantec.com	Stantec

3.15 Car Parking During Construction Works

3.15.1 Construction Workers Parking

It is estimated that up to 120 contractors will be on-site. Construction workers will have access to the northern school car park throughout the duration of the Construction Works, as shown in Figure 3-3.



Figure 3-3: Construction Staff Parking

In addition, there is ongoing negotiations for the overflow car park at the neighbouring properties, providing up to 150 car parking spaces. This will be provided in the adjacent property to the south of Picton High School. Access to the proposed car park will be via the Southern carpark, where double gates to the construction staff carpark will be provided, as shown in Figure 3-4.



Figure 3-4: Proposed Construction Staff Parking

The proposed 150 car parking spaces provided in the adjacent property will accommodate for the 120 construction staff.

Workers and sub-contractors will also be encouraged to use public transport to travel to and from the work site where possible. The site has access to public transport services, fronting the Picton High School along Argyle Street. The bus routes are shown in Table 3-5.

Table 3-5: Bus Services along Argyle Street

Bus Route	Bus Services
911	Bargo to Picton
912	Yanderra to Picton via Buxton and Thirlmere
913	Buxton to Picton via Tahmoor
914	Buxton to Picton via Estonian Village

It should be taken in consideration, that the parking demand can be reduced by the following:

- Construction workers will arrive and finish throughout different times of the day;
- Car parking spaces is provided on-site;
- Public transport will be used to get to / from the site; and
- Construction workers will also car share.

3.15.2 School Staff Parking

School staff will have access to the southern car park throughout the duration of the construction works, as shown in Figure 3-5.



Figure 3-5: School Staff Parking

In addition, additional on-street parking is also available along Wonga Road and Argyle Street. There is a maximum of 184 on-street parking spaces along Argyle Street and Wonga Road, further details of available parking spaces is provided in Section 2.4.

3.16 Staff Access and Delivery vehicles

Staff will have access to the southern car park via Argyle Street and Wonga Road. A new entry and exit access will run along the southern boundary of the site connecting Wonga Road to the southern carpark. A new (entry only) access will be located on Argyle Street, as shown in Figure 3-6.

Deliveries to the site will be very low and infrequent. Delivery vehicles will enter and exit the site via the new driveway access on Wonga Road.



Figure 3-6: Staff and Delivery Vehicle Access

3.17 Drop Off and Pick Up

The parents drop off and pick up area will continue to occur along Argyle Street, as per the current arrangements. There will be a new School access fronting the parents drop off and pick up area. The new School Access on Argyle Street and a footpath connection via the northern side of the Hall Building will be provided for access to the School grounds. This will be the main drop off and pick up point

Parents will continually be advised by the Schools newsletter of the designated pick up and drop off areas along Argyle Street.

3.18 Pedestrian Safety

During the construction activities and the operations of the Temporary School, a traffic controller / staff will assist in the safety of pedestrian movements at the main access to avoid conflicts with bus and vehicle movements.

3.19 Intersection Analysis

An analysis of the operation of the existing intersection of Argyle Street and Wonga Road was carried out using the SIDRA computer modelling program.

The two traffic modelling scenarios for the road network are modelled for the morning and evening School peak periods:

- Scenario 1: Existing Traffic (Base Case)** - This scenario includes the 2018 traffic survey volumes (includes the current school operations) modelled over the existing intersection configuration of Wonga Road and Argyle Street. This analysis has been performed for the morning and evening peak periods;
- Scenario 2: Construction Traffic Volumes** - This analysis incorporates the main construction works of Picton High School. For this assessment school staff and construction staff will enter the Site via Argyle Street, and leave via Wonga Road, all bus services will operate via the existing bus arrangement on

Argyle Street. The layout of the existing intersection configuration of Wonga Road and Argyle Street is used for the assessment.

3.19.1 Traffic Distribution

The traffic distribution of the various users associated with the school are described below and in Figure 3-7:

- It has been assumed that 100% of school staff (current staff number is 83) will utilise the new driveway access via Argyle Street to access the site, and all staff will exit the site via Wonga Road in the afternoon;
- Staff vehicle distributions have been based on a 50 / 50 split coming from the northbound and southbound direction;
- The bus movements have been based on the existing traffic surveys for the morning and afternoon peak periods. For this assessment bus services will continue to operate along Argyle Street as per the current operations;
- It has been assumed that 100% of construction staff (120 contractors) will utilise the new driveway access via Argyle Street to access the site and into the provided carparks. All construction staff will exit the site via Wonga Road, and will be outside the school peak periods.
- Construction staff vehicle distributions have been based on a 50 / 50 split coming from the northbound and southbound direction;
- Construction staff and school staff will both arrive at the school during the morning peak periods;
- Construction staff and school staff will exit at different afternoon times of the day. School Staff generally leave the site from 3:30pm to 4:40pm, and the construction hours are until 5:00pm. Therefore, construction staff will leave after 5:00pm onwards;
- The parents drop-off and pick-up movements will continue to occur along Argyle Street as per the current arrangement; and
- Deliveries to the site will be very low and infrequent. Deliveries will enter and exit the site via the new driveway access on Wonga Road.

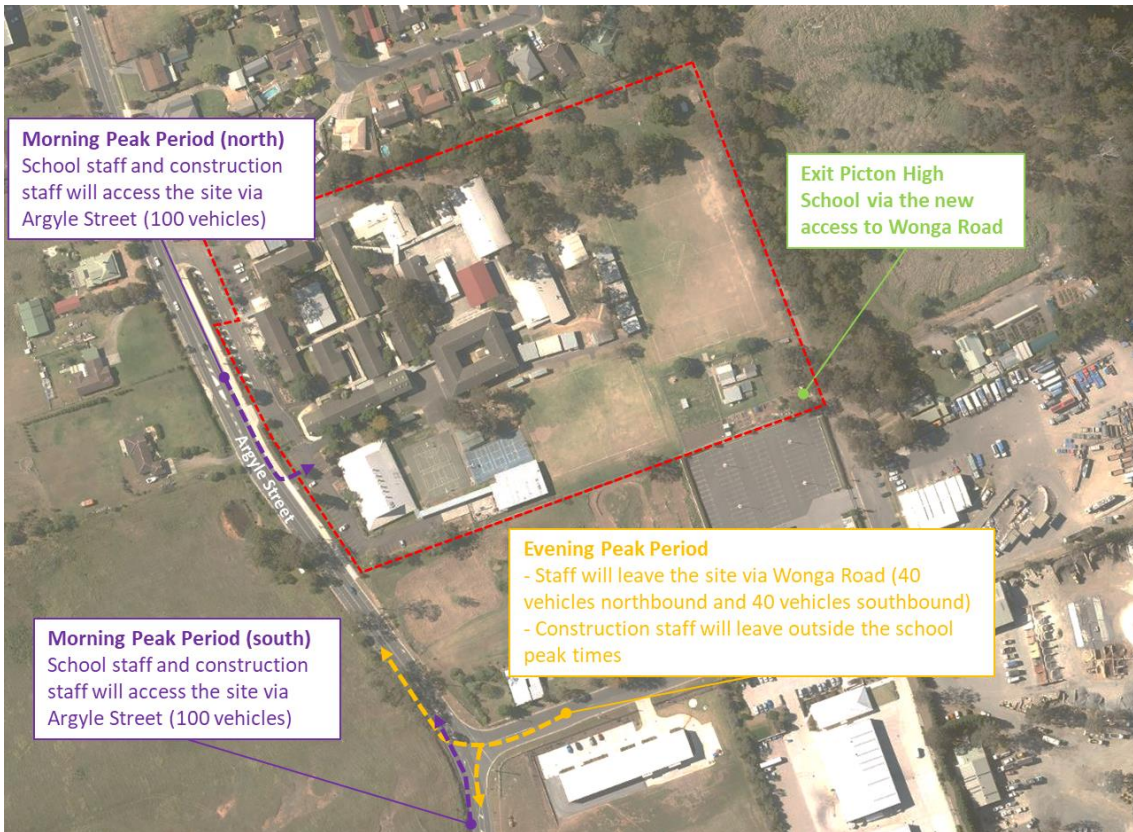


Figure 3-7: School staff and construction staff vehicle movements (Morning and Evening Peak Periods)

A summary of the SIDRA results is presented in Table 3-6 for the Argyle Street and Wonga Road intersection, with the detailed outputs provided in Appendix B.

Table 3-6: Wonga Road and Argyle Street SIDRA Results

Scenario	Morning Peak		Evening Peak	
	Average Delay (secs)	Level of Service (LoS)	Average Delay (secs)	Level of Service (LoS)
Scenario 1 (Existing)	14.5	A	18.4	B
Scenario 2	15.0	B	18.7	B

Note: For the SIDRA assessment, the gap acceptance values for right turning vehicles from Wonga Road have been reduced to 5.0 seconds and 3.0 seconds for the critical gap and follow-up headway. The reductions are based on on-site observations and traffic surveys.

The intersection analysis results show that the intersection of Wonga Road and Argyle Street is currently (Scenario 1) operating at a Level of Service A and B for both the morning and evening peak periods.

Based on the Scenario 2 assessment, the intersection of Wonga Road and Argyle Street is operating at a Level of Service B for the morning and evening peak periods and can accommodate for the traffic leaving via Wonga Road due to the main construction works of Picton High School. The results produced are acceptable, given that there should not be any construction vehicles leaving the site during the afternoon peak.

4. Stage 4 – Removal of Classroom Demountables

4.1 Construction Works

After completion of the main construction works of the School. The temporary classroom demountables will be removed from the site. This will take a duration of 5 months between January 2021 to May 2021.

4.2 Vehicle Movement Plan

For Stage 4 (removal of temporary classroom demountables), it is proposed that construction vehicles will generally:

- Arrive at the site travelling from Argyle Street;
- Enter the site via the new access off Wonga Road.
- Unloading and loading will occur within the site; and
- Depart the site via Wonga Road to Argyle Street.

The proposed construction vehicle during the 'Stage 4 – Removal of temporary classroom demountables' movement plan accessing and leaving the site is shown in Figure 3-1



Figure 4-1: Construction Vehicle Movement Plan ³

Truck movements will be restricted to travel during the morning and afternoon school peak periods to reduce the traffic conflict between buses and construction vehicles.

These works are expected to generate up to 10 trucks daily volumes of heavy vehicle movements from January 2021 to May 2021.

³ Source: <https://maps.spookfish.com>

4.3 Traffic Management (Stage 4)

As detailed in Section 3, the following traffic, parking and access management will remain the same during these works (removal of the temporary classroom demountables):

- Construction Staff Parking will be provided in the northern car park. There is ongoing negotiations for the overflow car park at the neighbouring properties, providing up to 150 car parking spaces. This will be provided in the adjacent property to the south of Picton High School
- Parent drop-off and pick up will continue to operate along Argyle Street;
- Bus services will continue to operate using the designated bus area along Argyle Street;
- School staff will have access to the southern car park throughout the duration of the construction works. Additional on-street parking is also available along Wonga Road and Argyle Street.
- The main student access is via Argyle Street.
- A traffic controller / staff will assist in the safety of pedestrian and traffic movements to avoid conflicts with any vehicle and pedestrian conflict.

5. Response to Comments

The following comments and responses are provided in Table 5-1.

Table 5-1: Comments and Responses

Comments	Response
<p>B15 Prior to commencement of construction, the Applicant must prepare a Construction Environmental Management Plan (CEMP);</p> <ul style="list-style-type: none"> a. be prepared by a suitably qualified and experienced person(s); b. be prepared in consultation with Council and RMS; c. detail the measures that are to be implemented to ensure road safety and network efficiency during construction in consideration of potential impacts on general traffic, cyclists and pedestrians and bus services; d. detail heavy vehicle routes, access and parking arrangements e. include a Driver Code of Conduct to <ul style="list-style-type: none"> I. minimise the impacts of earthworks and construction on the local and regional road network; II. minimise conflicts with other road users; III. minimise road traffic noise; and IV. ensure truck drivers use specified routes. 	<p>Refer to Section 3.10 regarding Construction Environment Management</p> <ul style="list-style-type: none"> a. The Construction Traffic and Pedestrian Management Plan and Traffic Control Plan has been prepared by an RMS Accredited Traffic Control Plan Developer; b. RMS and Council have been contacted in preparation of the Construction Traffic and Pedestrian Management Plan c. It should be noted contractors start working at 7:00am and finish at 5:00pm, and may start / finish different times of the day, depending on the construction works that is involved at the time. The construction works is also proposed to operate on Saturdays from 8:00am to 1:00pm. <p>Truck movements will be restricted to travel through the bus area during the morning and afternoon school peak periods to minimise the conflict between buses, construction vehicles and pedestrians.</p> <p>A Traffic Control Plan (TCP) has been developed for the major construction works, details provided Section 3.11.</p> <p>The Traffic Control Plans has been designed in accordance with the Australian Standards and the Roads and Maritime Services (RMS) Traffic Control at Work Sites Manual and prepared by an RMS Accredited Traffic Control Plan Developer</p> <p>Refer to Section 3.17 and 3.18 for pedestrian safety and existing parent drop off and pick up.</p> <ul style="list-style-type: none"> d. Refer to Section 3.7 for Driver Code of Conduct
<p>B17 The Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP)</p>	<p>Documented throughout the Construction Traffic and Pedestrian Management Plan</p>

Comments	Response
<p>B22 Prior to the commencement of construction, the Applicant must provide sufficient parking facilities for heavy vehicles on-site (unless alternative parking is agreed to in writing from the relevant road authority), and ensure that construction traffic associated with the development minimises on-street parking or the use of public parking facilities.</p>	<p>Refer to the following Section: Sections 3.10 – Existing Parking Environment Section 3.15.1 – Construction Staff Parking Section 3.15.2 – School Staff Park</p> <p>It is proposed that all loading will occur within the site</p>
<p>B27 The Applicant must notify the RMS Traffic Management Centre of the truck route(s) to be followed by trucks transporting waste material from the site, prior to the commencement of the removal of any waste material from the site.</p>	<p>RMS have been contacted and will require the final Construction Traffic and Pedestrian Management for review.</p>
<p>C9 All construction vehicles (excluding worker vehicles) are to be contained wholly within the site, except if located in an approved on-street work zone, and vehicles must enter the site before stopping.</p>	<p>Refer to the Vehicle Movement Plan in Section 3.6</p>
<p>C10 A Road Occupancy License must be obtained from the relevant road authority for any works that impact on traffic flows during construction activities.</p>	<p>The Road Occupancy License will be applied to Council prior to Construction works of Picton High School</p>

6. Conclusion

Stantec has prepared this Construction Traffic and Pedestrian Management Plan (CTPMP) to discuss the proposed temporary traffic and pedestrian management measures to be employed during the Main Construction Works of Picton High School.

The construction works will consist of the following:

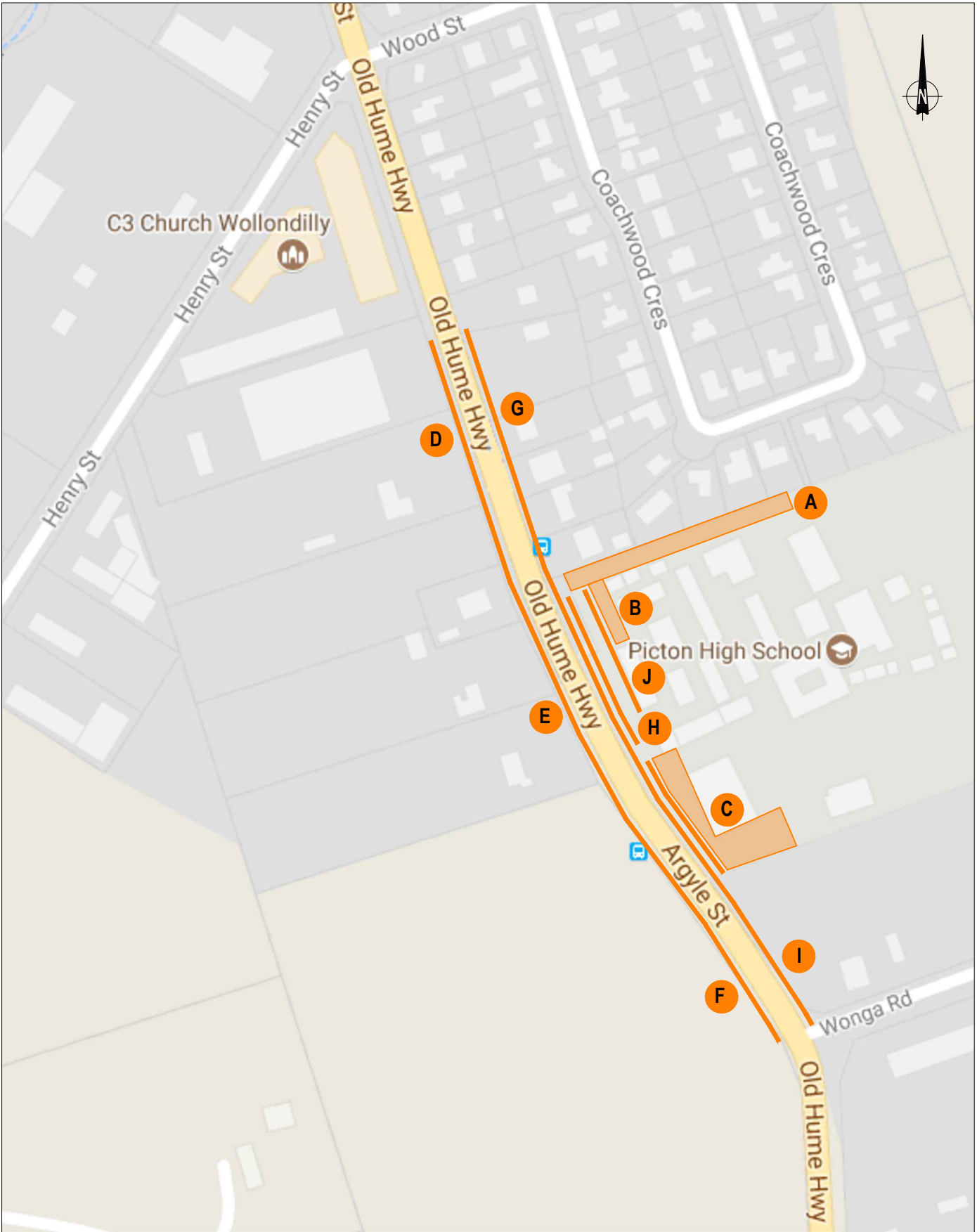
- Removal of asbestos of the existing buildings;
- Demolition of the existing buildings;
- Construction and refurbishment of the new buildings; and
- Removal of temporary classroom demountables.

The main construction works will occur on-site. By way of a summary, it is concluded that these effects can be managed within acceptable bounds to minimise disruption expected to vehicular traffic, pedestrians and construction vehicles.

Appendices



Appendix A Parking Survey Results



Appendix B SIDRA Results

MOVEMENT SUMMARY

 **Site: 3 [AM 2018 - Existing - Argyle/Wonga]**

AM 2018 - Existing - Argyle/Wonga

Site Category: (None)

Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Vehicles veh	Queue Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Argyle Street												
2	T1	600	5.1	0.318	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	5	40.0	0.008	9.1	LOS A	0.0	0.3	0.50	0.63	0.50	49.5
Approach		605	5.4	0.318	0.1	NA	0.0	0.3	0.00	0.01	0.00	59.8
East: Wonga Road												
4	L2	5	60.0	0.010	12.4	LOS A	0.0	0.4	0.48	0.92	0.48	36.2
6	R2	60	7.0	0.148	14.5	LOS A	0.5	3.6	0.73	1.00	0.73	35.0
Approach		65	11.3	0.148	14.3	LOS A	0.5	3.6	0.71	1.00	0.71	35.1
North: Argyle Street												
7	L2	80	22.4	0.050	3.5	LOS A	0.0	0.0	0.00	0.45	0.00	38.6
8	T1	363	6.1	0.194	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		443	9.0	0.194	0.7	NA	0.0	0.0	0.00	0.08	0.00	39.7
All Vehicles		1114	7.2	0.318	1.2	NA	0.5	3.6	0.04	0.09	0.04	48.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Models & Calculations\Picton HS - Construction.sjp8

MOVEMENT SUMMARY

 Site: 3 [PM 2018 - Existing - Argyle/Wonga]

PM 2018 Existing - Argyle/Wonga
 Site Category: (None)
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Argyle Street												
2	T1	391	4.9	0.208	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
3	R2	21	20.0	0.046	12.1	LOS A	0.2	1.3	0.66	0.83	0.66	48.2
Approach		412	5.6	0.208	0.6	NA	0.2	1.3	0.03	0.04	0.03	59.2
East: Wonga Road												
4	L2	34	3.1	0.076	14.4	LOS A	0.2	1.8	0.65	1.00	0.65	48.2
6	R2	42	10.0	0.132	18.4	LOS B	0.4	3.2	0.78	1.00	0.78	45.7
Approach		76	6.9	0.132	16.7	LOS B	0.4	3.2	0.72	1.00	0.72	46.8
North: Argyle Street												
7	L2	59	16.1	0.035	5.7	LOS A	0.0	0.0	0.00	0.57	0.00	52.9
8	T1	689	5.3	0.366	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		748	6.2	0.366	0.5	NA	0.0	0.0	0.00	0.05	0.00	59.3
All Vehicles		1236	6.0	0.366	1.5	NA	0.4	3.2	0.06	0.10	0.06	58.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 3 [AM Existing + Construction - Argyle/Wonga]

AM Existing + Construction - Argyle/Wonga
 Site Category: (None)
 Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Argyle Street												
2	T1	663	4.6	0.350	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
3	R2	5	40.0	0.007	8.7	LOS A	0.0	0.3	0.48	0.62	0.48	49.8
Approach		668	4.9	0.350	0.1	NA	0.0	0.3	0.00	0.00	0.00	59.8
East: Wonga Road												
4	L2	5	60.0	0.009	11.8	LOS A	0.0	0.3	0.45	0.91	0.45	36.4
6	R2	60	7.0	0.155	15.0	LOS B	0.5	3.8	0.74	1.00	0.74	34.9
Approach		65	11.3	0.155	14.7	LOS B	0.5	3.8	0.72	1.00	0.72	35.0
North: Argyle Street												
7	L2	80	22.4	0.050	3.5	LOS A	0.0	0.0	0.00	0.45	0.00	38.6
8	T1	321	6.9	0.172	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	40.0
Approach		401	10.0	0.172	0.7	NA	0.0	0.0	0.00	0.09	0.00	39.7
All Vehicles		1135	7.1	0.350	1.2	NA	0.5	3.8	0.04	0.09	0.04	49.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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MOVEMENT SUMMARY

Site: 3 [PM Existing + Construction - Argyle/Wonga]

PM Existing + Construction - Argyle/Wonga

Site Category: (None)

Stop (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Argyle Street												
2	T1	391	4.9	0.208	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
3	R2	21	20.0	0.046	12.1	LOS A	0.2	1.3	0.66	0.83	0.66	48.2
Approach		412	5.6	0.208	0.6	NA	0.2	1.3	0.03	0.04	0.03	59.2
East: Wonga Road												
4	L2	76	1.4	0.169	14.6	LOS B	0.6	4.0	0.67	1.00	0.67	48.2
6	R2	84	5.0	0.248	18.7	LOS B	0.9	6.3	0.80	1.03	0.89	45.6
Approach		160	3.3	0.248	16.8	LOS B	0.9	6.3	0.74	1.01	0.78	46.8
North: Argyle Street												
7	L2	59	16.1	0.035	5.7	LOS A	0.0	0.0	0.00	0.57	0.00	52.9
8	T1	689	5.3	0.366	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		748	6.2	0.366	0.5	NA	0.0	0.0	0.00	0.05	0.00	59.3
All Vehicles		1320	5.7	0.366	2.5	NA	0.9	6.3	0.10	0.16	0.11	57.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

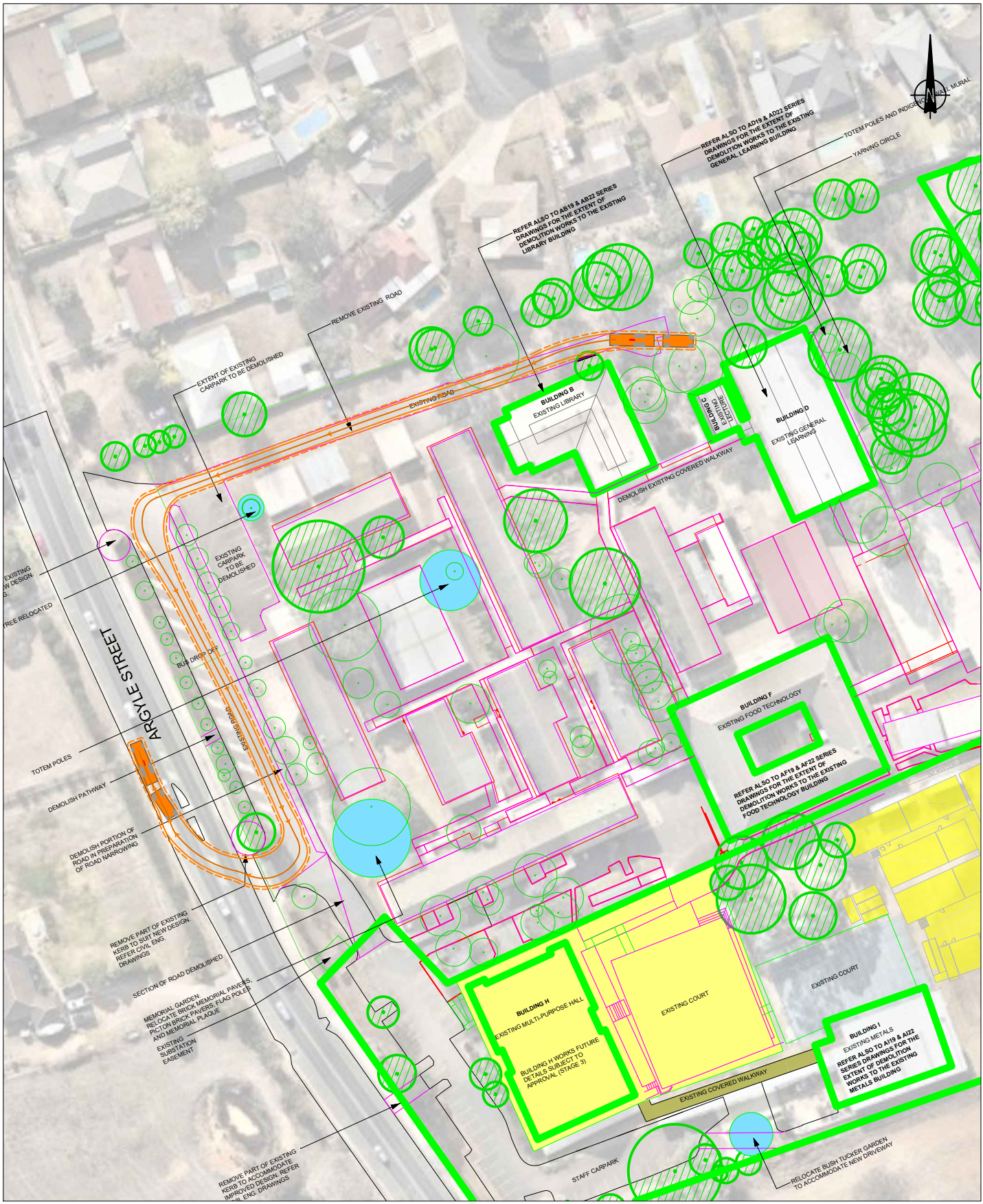
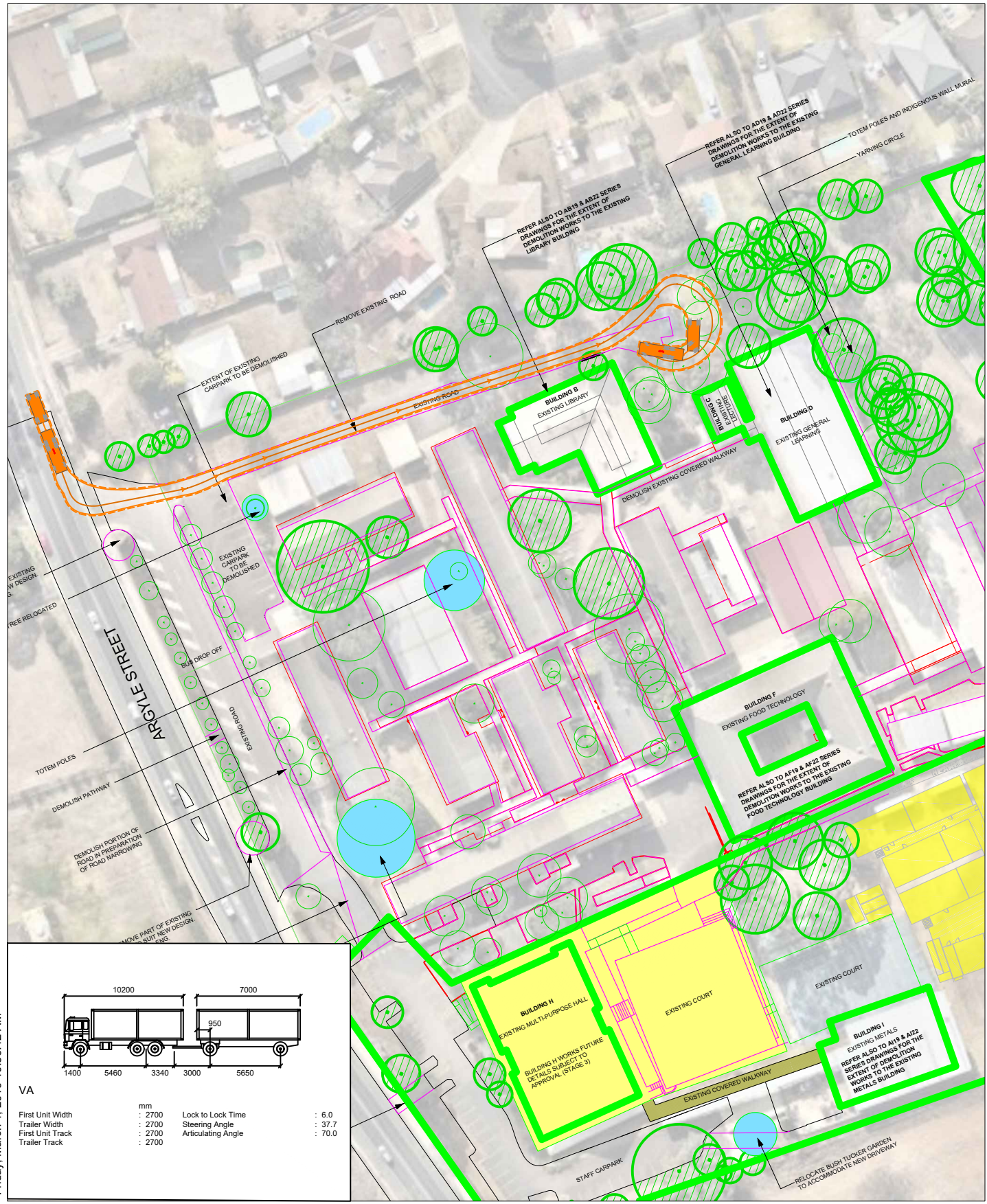
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Models & Calculations\Picton HS - Construction.sjp8

Appendix C Vehicle Swept Path Analysis



REV	DATE	DRN	CHK	DESCRIPTION
00	01/03/19	DA		

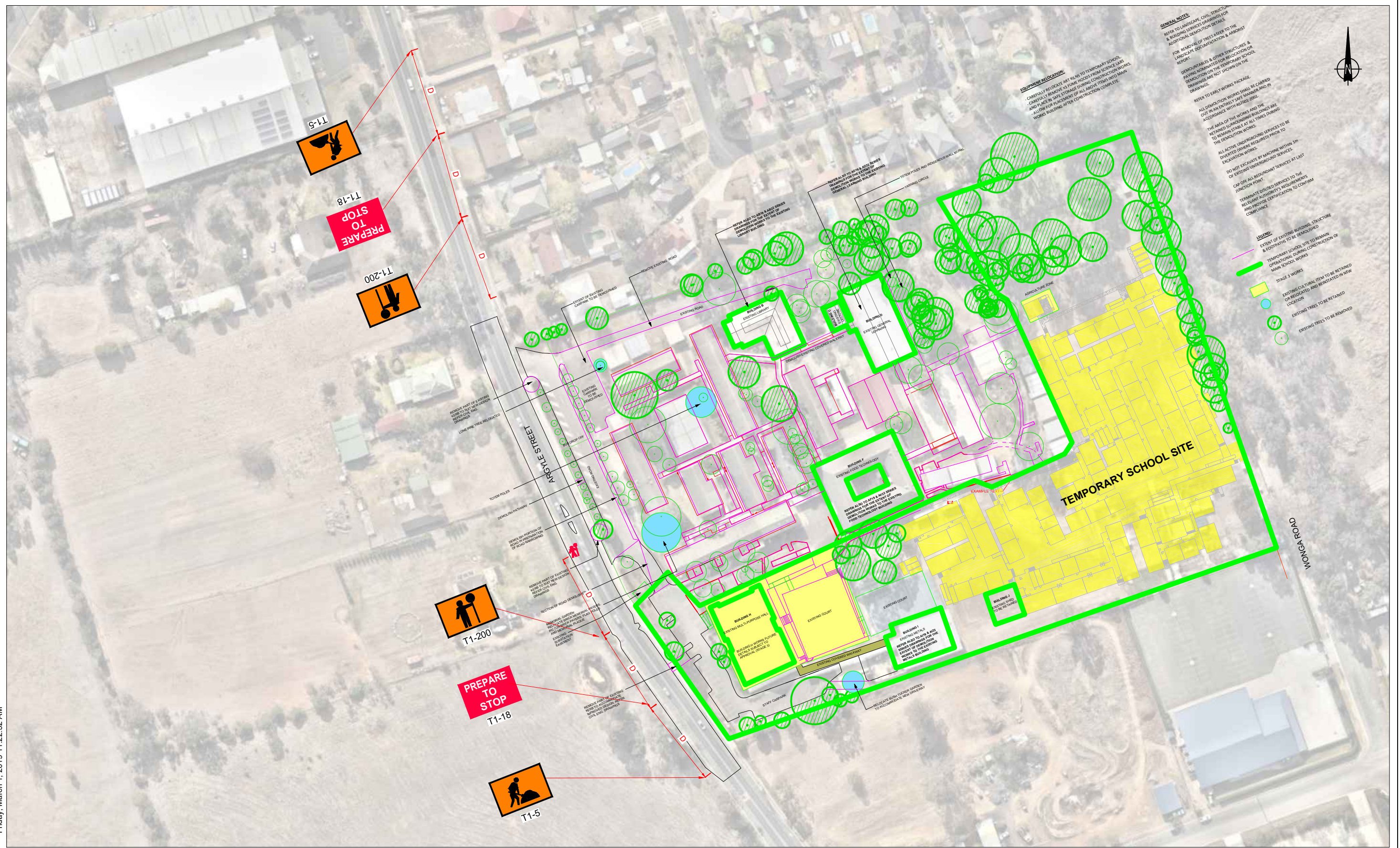
Picton High School Redevelopment
 Swept Path Assessment
 19.0 metre Truck and Dog

DRAWN: DA
 DATE: 01-03-19 STATUS: ---
 SCALE: 1:1200 @ A3
 DWG NO:300303009-01SA

Stantec **1**

Appendix D Traffic Control Plans

Friday, March 1, 2019 11:22:32 AM



REV	DATE	DRN	CHK	DESCRIPTION
00	21/03/19	DA		

Picton High School Redevelopment
Traffic Control Plan

DRAWN: DA --- ---
 DATE: 01-03-19 STATUS: ---
 SCALE: 1:1649.5007 @ A3
 DWG NO:300303009-01SA



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Appendix F Noise and Vibration Management Sub-Plan

Picton High School, 480 Argyle Street, Picton
Construction Noise & Vibration Management Plan

Project ID	20190155.2
Document Title	Construction Noise & Vibration Management Plan
Attention To	Taylor Construction Group Pty Ltd Attn:Stephen Craig

Revision	Date	Document Reference	Prepared By	Checked By	Approved By
0	5/03/2019	20190155.2/0503A/R0/JM	JM		TA

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1 INTRODUCTION

This report presents the recommended approach for managing potential noise and vibration impacts arising from the construction activities associated with the redevelopment of Picton High School, 480 Argyle Street, Picton.

The principal objective of this study is to undertake an evaluation of works/activities to be performed during the excavation and construction of the project and forecast the potential impacts of noise and vibration. This assessment will be used to formulate and streamline effective regulation and mitigation measures.

The principal issues, which will be addressed in this report, are:

- Identification of the noise and vibration guidelines which will be applicable to this project.
- Prediction of likely noise levels impacting surrounding receiver locations.
- Formulation of a strategy for construction to comply with the standards identified in the above point.
- Establishment of direct communication networks between affected groups, principal contractor (when engagement is finalised) and Acoustic Logic Consultancy Pty Ltd.

A critical component of this report is the formulation of noise and vibration control strategies for the different excavation and construction processes. These strategies include the formulation of site management procedures, whether they can be operational or time based. A detailed noise and vibration management plan forms part of this report.

The objective of this study in all cases is to minimise noise and vibration emissions from the excavation and construction processes or to schedule works which may have a significant acoustic impact on adjoining receivers.

Provided all measures outlined in this report are fully implemented, noise and vibration impacts associated with the construction of the development site will be strictly controlled, and the impact on the surrounding environs minimised.

2 SITE DESCRIPTION / AFFECTED PROPERTIES

Picton High School, 480 Argyle Street, Picton, the subject site, is located immediately east of the Old Hume Highway (otherwise known as Argyle Street), and is bounded by residential houses and Wonga road.

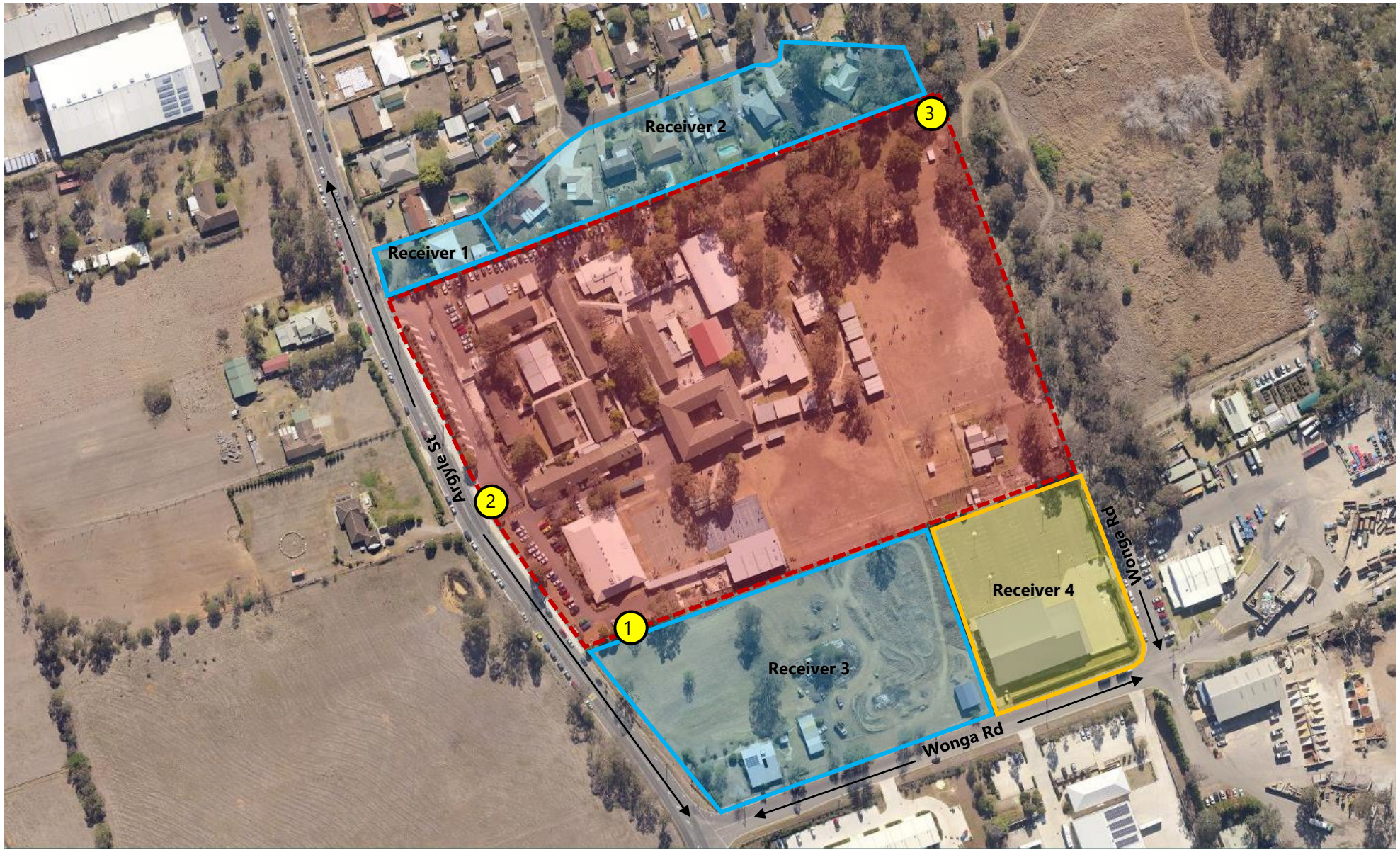
The project involves the redevelopment of the existing high school. This will include:

- Demolition of the majority of existing classrooms/offices, and construction of a large Building A and B ;
- Construction of 2 additional support unit class rooms (as extension of and existing building);
- Automotive extension of existing Metals Engineering Work Shop Building;
- Various external land scaping, and;
- The construction of additional external carparks.

Figure 1 below illustrates location of the subject site and surrounding properties. The potentially nearest affected receivers are as follows;

- **Receiver 1:** Residential house adjacent to the northern site boundary, located at 468 Argyle Street, Picton.
- **Receiver 2:** Residential houses adjacent to the northern site boundary, located at 27-41 Coachwood Crescent, Picton.
- **Receiver 3:** Residential house situated south of the project site, located at 500 Argyle Street, Picton.
- **Receiver 4:** Commercial development situated south-east of the project site, located at 15 Wonga Road, Picton.

All construction vehicles will access the site via Argyle Street. Figure 1 below illustrates the location of the subject site and unattended noise monitor location. Figure 2 illustrates the subject development.




 Unattended Noise Measurement

Figure 1 – Site Location, Receivers & Measurement Locations
Sourced from Six Maps 2019




-  Project Site
-  Residential Receiver
-  Commercial Receiver



Figure 2 – Proposed Site Map

3 HOURS OF WORK

The Development Consent for Picton High School, 480 Argyle Street, Picton (App No. SSD 8640) states the following in regard to hours of work:

Construction Hours

C5. *Construction, including the delivery of materials to and from the site, may only be carried out between the following hours:*

- (a) *between 7:00 am and 6:00 pm, Mondays to Fridays inclusive; and*
- (b) *between 8:00 am and 1:00 pm, Saturdays.*

No work may be carried out on Sundays or public holidays.

C6. *Activities may be undertaken outside of the hours in condition C5 if required:*

- (a) *by the Police or a public authority for the delivery of vehicles, plant or materials; or*
- (b) *in an emergency to avoid the loss of life, damage to property or to prevent environmental harm; or*
- (c) *where the works are inaudible at the nearest sensitive receivers; or*
- (d) *where a variation is approved in advance in writing by the Planning Secretary or her nominee if appropriate justification is provided for the works.*

Notification of such activities must be given to affected residents before undertaking the activities or as soon as is practical afterwards.

C7. *Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:*

- (a) *9am to 12pm, Monday to Friday;*
- (b) *2pm to 5pm Monday to Friday; and*
- (c) *9am to 12pm, Saturday.*

3.1 SUMMARY OF CONSTRUCTION HOURS

Table 1 – Summary of Construction Hours

Activity	Day	Time
Rock breaking, rock hammering, sheet piling, pile driving and similar	Monday to Friday	9:00am – 12:00pm & 2:00pm – 5:00 pm
	Saturday	No works permitted
	Sunday & Public Holidays	No works permitted
All other construction activities	Monday to Friday	7:00am – 6:00pm
	Saturday	8:00am – 1:00pm
	Sunday & Public Holidays	No works permitted

4 AMBIENT NOISE MONITORING

Background noise monitoring has been completed by our office and GHD to determine the Rating Background Noise Levels around the site. All three monitor locations have been numbered as follows:

Logger 1: ALC 2019

Logger 2: GHD 2017

Logger 3: GHD 2017

4.1 MEASUREMENT EQUIPMENT

ALC's Unattended noise monitoring was conducting using one Acoustic Research Laboratories Pty Ltd noise logger. The logger was programmed to store 15-minute statistical noise levels throughout the monitoring period. The equipment was calibrated at the beginning and the end of each measurement using a Rion NC-73 calibrator; no significant drift was detected. All measurements were taken on A-weighted fast response mode.

4.2 MEASUREMENT PERIOD & LOCATION

Table 2 – Unattended Rating Background Noise Monitors

Logger #	Location	Start Date	End Date
Logger 1: ALC 2019	South-west corner of site	Monday 18/02/2019	Sunday 24/02/18
Logger 2: GHD 2017	Argyle Street	Thursday 07/12/17	Friday 15/12/17
Logger 3: GHD 2017	North-east corner of site	Thursday 07/12/17	Friday 15/12/17

Refer to figure 1 for detailed logger locations

4.3 MEASURED BACKGROUND NOISE LEVELS

The background noise levels established from the unattended noise monitoring are detailed in the table below.

Table 3 – Attended Rating Background Noise Measurement

Logger #	Time Period	Rating Background noise level dB(A) _{L90(period)}
Logger 1: ALC 2019	Daytime (7am-6pm)	48
	Evening (6pm-10pm)	41
	Night (10pm-7am)	31
Logger 2: GHD 2017	Daytime (7am-6pm)	48
	Evening (6pm-10pm)	40
	Night (10pm-7am)	28
Logger 3: GHD 2017	Daytime (7am-6pm)	39
	Evening (6pm-10pm)	35
	Night (10pm-7am)	26

5 NOISE AND VIBRATION MANAGEMENT

5.1 NOISE MANAGEMENT LEVELS

Noise impacts from the proposed construction works on site will be assessed against the following guidelines;

- Development Consent (App No. SSD 8640)
- NSW EPA Interim Construction Noise Guideline; and
- Australian Standard 2436-2010 “*Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites*”.

5.1.1 Development Consent (App No. SSD 8640)

- B18.** 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 B18(d); and
 - (f) include a complaints management system that would be implemented for the duration of the construction.

Construction Noise Limits

- C14.** *The development must be constructed to achieve the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures identified in the approved Construction Noise and Vibration Management Plan.*
- C15.** *The Applicant must ensure construction vehicles (including concrete agitator trucks) do not arrive at the site or surrounding residential precincts outside of the construction hours of work outlined under condition C5.*
- C16.** *The Applicant must implement, where practicable and without compromising the safety of construction staff or members of the public, the use audible movement alarms of a type that would minimise noise impacts on surrounding noise sensitive receivers.*
- C17.** *Any noise generated during construction of the development must not be offensive noise within the meaning of the Protection of the Environment Operations Act 1997 or exceed approved noise limits for the site.*

5.1.2 NSW EPA Interim Construction Noise Guideline

The “quantitative” assessment procedure, as outlined in the Interim Construction Noise Guideline (ICNG) will be used. The quantitative assessment method requires: Determination of noise generation goals (based on ambient noise monitoring); Prediction of operational noise levels at nearby development; and if necessary, recommendation of noise controls strategies in the event that compliance with noise emission goals is not possible.

EPA guidelines adopt differing strategies for noise control depending on the predicted noise level at the nearest residences:

- *“Noise affected” level.* Where construction noise is predicted to exceed the “noise effected” level at a nearby residence, the proponent should take reasonable/feasible work practices to ensure compliance with the “noise effected level”. For residential properties, the “noise effected” level occurs when construction noise exceeds ambient levels by more than 10dB(A) $L_{eq(15min)}$.
- *“Highly noise affected level”.* Where noise emissions are such that nearby properties are “highly noise effected”, noise controls such as respite periods should be considered. For residential properties, the “highly noise effected” level occurs when construction noise exceeds 75dB(A) $L_{eq(15min)}$ at nearby residences.

Table 4 – Noise Emission Management Levels for Residential Properties.

Receiver	Rating Background noise level dB(A) $L_{90(period)}$	“Noise Affected” Level - dB(A) $L_{eq(15min)}$	“Highly Noise Affected” Level - dB(A) $L_{eq(15min)}$
Receiver 1	48	58	75
Receiver 2	40	50	75
Receiver 3	48	58	75

Section 4.1.2 and 4.1.3 of this guideline also nominates management levels for other sensitive land uses (other than residences). Noise levels relevant to this assessment is detailed below.

Table 5 – Noise Emission Management Levels for Non-Residential Properties

Land Use	Management Level - dB(A) $L_{eq(15min)}$
Commercial, Office, Retail	External noise level 70 dB(A) $L_{eq(15mins)}$ *

5.1.3 Australian Standard 2436-1981 “Guide to Noise and Vibration Control on Construction, Demolition and Maintenance Sites”

The Australian Standard AS2436 states that where all reasonable and available measures have been taken to reduce construction noise, mitigation strategies may be put in place to reduce levels noise levels to within a reasonable and acceptable level.

For the control and regulation of noise from construction sites, AS 2436:1981 nominates the following:

- That reasonable suitable noise criterion is established,
- That all practicable measures be taken on the building site to regulate noise emissions, including the siting of noisy static processes to locations of the site where they can be shielded, selecting less noisy processes, and if required regulating construction hours, and
- The undertaking of noise monitoring where non-compliance occurs to assist in the management and control of noise emission from the construction site.

The guideline reflects on feasible and reasonable mitigation strategies, management controls and public liaising in the effort to reach realistic compromises between construction sites and potential noise affected receivers.

Based on this information the following procedure will be used to assess noise emissions:

- Predict noise levels produced by typical construction activities at the sensitive receivers.
- Adopt management conditions as per AS 2436 in the event of a non-compliance.

5.2 VIBRATION MANAGEMENT CRITERIA

Vibration caused by the proposed excavation or construction activities on site should be assessed using the following guidelines:

- Development Consent (App No. SSD 8640)
- For structural damage vibration, German Standard DIN 4150-3 Structural Vibration: Effects of Vibration on Structures; and
- For human exposure to vibration (amenity), the evaluation criteria presented in the NSW EPA's *Assessing Vibration: a technical guideline* document will be used to set management levels.

The criteria and the application of these standards are discussed in separate sections below.

5.2.1 Development Consent (App No. SSD 8640)

Vibration Criteria

C18. *Vibration caused by construction at any residence or structure outside the site must be limited to:*

- for structural damage, the latest version of DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures (German Institute for Standardisation, 1999); and*
- for human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: a technical guideline (DEC, 2006) (as may be updated or replaced from time to time).*

C19. *Vibratory compactors must not be used closer than 30 metres from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition C18.*

C20. *The limits in conditions C18 and C19 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition B18 of this consent.*

5.2.2 Structure Borne Vibrations

German Standard DIN 4150-3 (1999-02) provides a guideline for acceptable levels of vibration velocity in building foundations, to assess the effects of vibration on structures. The table give guidance on the maximum accepted values of velocity at the foundation and in the plane of the highest floor of various types of buildings, to prevent any structural damage.

The table below lists the peak particle velocity, which is the maximum absolute value of the velocity signals for the three orthogonal components. This is measured as a maximum value of any of the three orthogonal component particle velocities when measured at the foundation, and the maximum levels measured in the x- and y-horizontal directions in the plane of the floor of the uppermost storey.

Table 6 – DIN 4150-3 (1999-02) Safe Limits for Building Vibration

Type of Structure		Peak Particle Velocity (mms ⁻¹)			
		At Foundation at a Frequency of			Plane of Floor of Uppermost Storey
		< 10Hz	10Hz to 50Hz	50Hz to 100Hz	All Frequencies
1	Buildings used in commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
2	Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Lines 1 or 2 and have intrinsic value (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

5.2.3 Assessing Amenity – Human Comfort

The NSW EPA's *Assessing Vibration – a technical guideline* is based on the guidelines contained in British Standard BS 6472-1992 'Guide to Evaluate Human Exposure to Vibration Buildings (1Hz to 80Hz)'. This guideline provides procedures for assessing tactile vibration and regenerated noise within potentially affected buildings.

The recommendations of this guideline should be adopted to assess and manage vibration from the site. Where vibration exceeds, or is likely to exceed, the recommended levels then an assessment of reasonable and feasible methods for the management of vibration should be undertaken.

Table 7 – BS 6472 Vibration Criteria

		RMS acceleration (m/s ²)		RMS velocity (mm/s)		Peak velocity (mm/s)	
Place	Time	Preferred	Maximum	Preferred	Maximum	Preferred	Maximum
Continuous Vibration							
Residences	Daytime	0.01	0.02	0.2	0.4	0.28	0.56
Offices	Day or night-time	0.02	0.04	0.4	0.8	0.56	1.1
Workshops		0.04	0.08	0.8	1.6	1.1	2.2
Impulsive Vibration							
Residences	Daytime	0.3	0.6	6.0	12.0	8.6	17.0
Offices	Day or night-time	0.64	1.28	13	26	18	36
Workshops		0.64	1.23	13	26	18	36

Note 1: Continuous vibration relates to vibration that continues uninterrupted for a defined period (usually throughout the daytime or night-time), e.g. continuous construction or maintenance activity. (DECC, 2006).

Note 2: Impulsive vibration relate to vibration that builds up rapidly to a peak followed by a damped decay and that may or may not involve several cycles of vibration (depending on frequency and damping), with up to three occurrences in an assessment period, e.g. occasional loading and unloading, or dropping of heavy equipment. (DECC, 2006)

6 PROPOSED CONSTRUCTION ACTIVITIES

We have been advised of the typical equipment/processes anticipated to be used for the construction of the subject development.

The A-weighted sound power levels for the anticipated equipment/processes are outlined in the tables below.

Table 8 – Construction Activities

Equipment / Process	Sound Power Level dB(A)
Jackhammer	115*
Angle grinders	114*
Bulldozer	113
Electric Saw	111*
Vibrating Roller	110
Excavator	108
Trucks	108
Concrete Pump	107
Impact Drill	105*
Cement Mixing Truck	105
Powered Hand Tools	94*

*** - includes 5 dB(A) addition for characteristics of noise source.**

The noise levels presented in the above table are derived from the following sources:

1. On-site measurements;
2. Table D2 of Australian Standard 2436-1981 & Table A1 of Australian Standard 2436-2010; and
3. Data held by this office from other similar studies.

7 NOISE EMISSION PREDICTIONS

7.1 METHODOLOGY

Noise from the loudest typical construction activities for each stage of works have been predicted to the nearest most affected sensitive receivers. The predicted noise levels are presented in this section and are based on the areas on the site in which the plant is likely to be used.

The predictions present a range of noise levels taking into account:

- The varying distance between the noise source and the receiver depending on the location of the noise source on the site.
- The screening effect provided by any existing building structures.

It is noted that many of the noise sources are present over a small period of the day or may be present for a few days with a significant intervening period before the activity occurs again.

Table 9 – Predicted Noise from Construction Works to Receiver 1: 468 Argyle Street

Construction Plant	Plant Noise Level dB(A)	Predicted Noise Range		Noise Management Level dB(A) _{Leq(15mins)}	Management Conditions
		dB(A) _{Leq(15mins)}			
Jackhammer	115*	60	80	58	See section 8.1
Angle grinders	114*	60	80	58	
Bulldozer	113	60	79	58	
Electric Saw	111*	57	77	58	
Vibrating Roller	110	52	58	58	
Excavator	108	55	74	58	
Trucks	108	55	75	58	
Concrete Pump	107	53	75	58	
Impact Drill	105*	47	71	58	
Cement Mixing Truck	105	50	73	58	
Crane	105	53	63	58	
Powered Hand Tools	94*	35	60	58	

Table 10 – Predicted Noise from Construction Works to Receiver 2: 27-41 Coachwood Crescent

Construction Plant	Plant Noise Level dB(A)	Predicted Noise Range		Noise Management Level dB(A) _{Leq(15mins)}	Management Conditions
		dB(A) _{Leq(15mins)}			
Jackhammer	115*	57	70	50	See section 8.1
Angle grinders	114*	55	68	50	
Bulldozer	113	55	67	50	
Electric Saw	111*	53	65	50	
Vibrating Roller	110	52	65	50	
Excavator	108	50	62	50	
Trucks	108	52	55	50	
Concrete Pump	107	50	55	50	
Impact Drill	105*	47	60	50	
Cement Mixing Truck	105	50	53	50	
Crane	105	50	53	50	
Powered Hand Tools	94*	35	48	50	

Table 11 – Predicted Noise from Construction Works to Receiver 3: 500 Argyle Street

Construction Plant	Plant Noise Level dB(A)	Predicted Noise Range		Noise Management Level dB(A) _{Leq(15mins)}	Management Conditions
		dB(A) _{Leq(15mins)}			
Jackhammer	115*	60	80	58	See section 8.1
Angle grinders	114*	60	80	58	
Bulldozer	113	60	79	58	
Electric Saw	111*	57	77	58	
Vibrating Roller	110	52	58	58	
Excavator	108	55	74	58	
Trucks	108	55	75	58	
Concrete Pump	107	53	75	58	
Impact Drill	105*	47	71	58	
Cement Mixing Truck	105	50	73	58	
Crane	105	53	63	58	
Powered Hand Tools	94*	35	30	58	

Table 12 – Predicted Noise from Construction Works to Receiver 4: 15 Wonga Road

Construction Plant	Plant Noise Level dB(A)	Predicted Noise Range dB(A)_{Leq(15mins)}		Noise Management Level dB(A)_{Leq(15mins)}	Management Conditions
Jackhammer	115*	57	72	70	See section 8.1
Angle grinders	114*	55	70	70	
Bulldozer	113	55	70	70	
Electric Saw	111*	53	68	70	
Vibrating Roller	110	55	67	70	
Excavator	108	50	65	70	
Trucks	108	50	54	70	
Concrete Pump	107	50	53	70	
Impact Drill	105*	47	62	70	
Cement Mixing Truck	105	47	50	70	
Crane	105	50	55	70	
Powered Hand Tools	94*	35	50	70	

8 AMELIORATIVE MEASURES

8.1 SITE SPECIFIC RECOMMENDATIONS

8.1.1 Potential Vibration and Structure Borne Noise Impacts

No vibration intrusive activities (piling or rock breaking operations) are proposed on site and hence no vibration and structure borne noise impacts are expected from the construction of the subject development.

The vibrating roller can cause vibration intrusion when operating within close proximity (10m or less) of a resident. However, the proposed use of the vibrating roller does not occur close residents.

8.1.2 Excavator and Bulldozers

Excavators and bulldozers are expected to be used for the majority of the time during the demolition and excavation periods. Where prolonged use is necessary, this equipment/machinery could be moved to another part of the site to offer the receiver closest to the plant some respite. Management processes include;

- We recommend commencing all noisy excavation works within 40-meters of an residential property boundary on site only after 8am, providing a 1-hour respite period during the morning period from the 7am standard hours of construction.
- All surrounding receivers will be notified of the duration and extent of the works proposed during the excavation stage via letterbox drops, with a detailed engagement plan and contact information for all relevant personnel on site.
We Note: SINSW have a Community Liaison Team especially dedicated to addressing complaints and notifying receivers.

8.1.3 Jackhammers, Angle Grinders, Electric Saws

Hammering will typically produce the loudest noise levels emanating from the site and have the highest potential for noise impacts on surrounding receivers. Hand tools would only be typically used sporadically. However, where extended use of these items would occur noise emissions should be managed. Management processes will include:

- Notification of potentially affected receivers of the duration and extent of the works proposed via letterbox drops, with a detailed engagement plan and contact information for all relevant personnel on site.
- We recommend commencing all works involving the use of jackhammers, electric saw and angle grinders within 40-meters of an residential property boundary on site only after 8am, providing a 1-hour respite period during the morning period from the 7am standard hours of construction.

8.1.4 Vehicle Noise and Concrete Pumps

All construction traffic, including loading and unloading operations are proposed to occur via an access gate via Argyle Street. We recommend the following controls:

- Trucks and bobcats to use a non-tonal reversing beacon (subject to OH&S requirements) to minimise potential disturbance of neighbours.
- Avoid careless dropping of construction materials into empty trucks.
- Trucks and concrete trucks must turn off their engines when on site to reduce impacts on adjacent land use (unless truck engine needs to remain on, for example during concrete pumping).
- Where concrete pumps are located unscreened and within 40m of a residence, pumping should not commence prior to 8am.

8.1.5 Other Activities

- In the event of complaint, noise management techniques identified in this report should be employed to minimise the level of noise impact. This may include community consultation and scheduling of loud construction processes.

We Note: SINSW have a Community Liaison Team especially dedicated to addressing complaints and notifying receivers.

- Notwithstanding above, general management techniques and acoustic treatments are included below which may be implemented on a case-by-case basis to reduce noise emissions to surrounding receivers.

9 CONTROL OF CONSTRUCTION NOISE AND VIBRATION

The execution of this work will facilitate the formulation of noise control strategies for this project.

The flow chart presented in Figure 4 illustrates the process that will be followed in assessing construction activities.

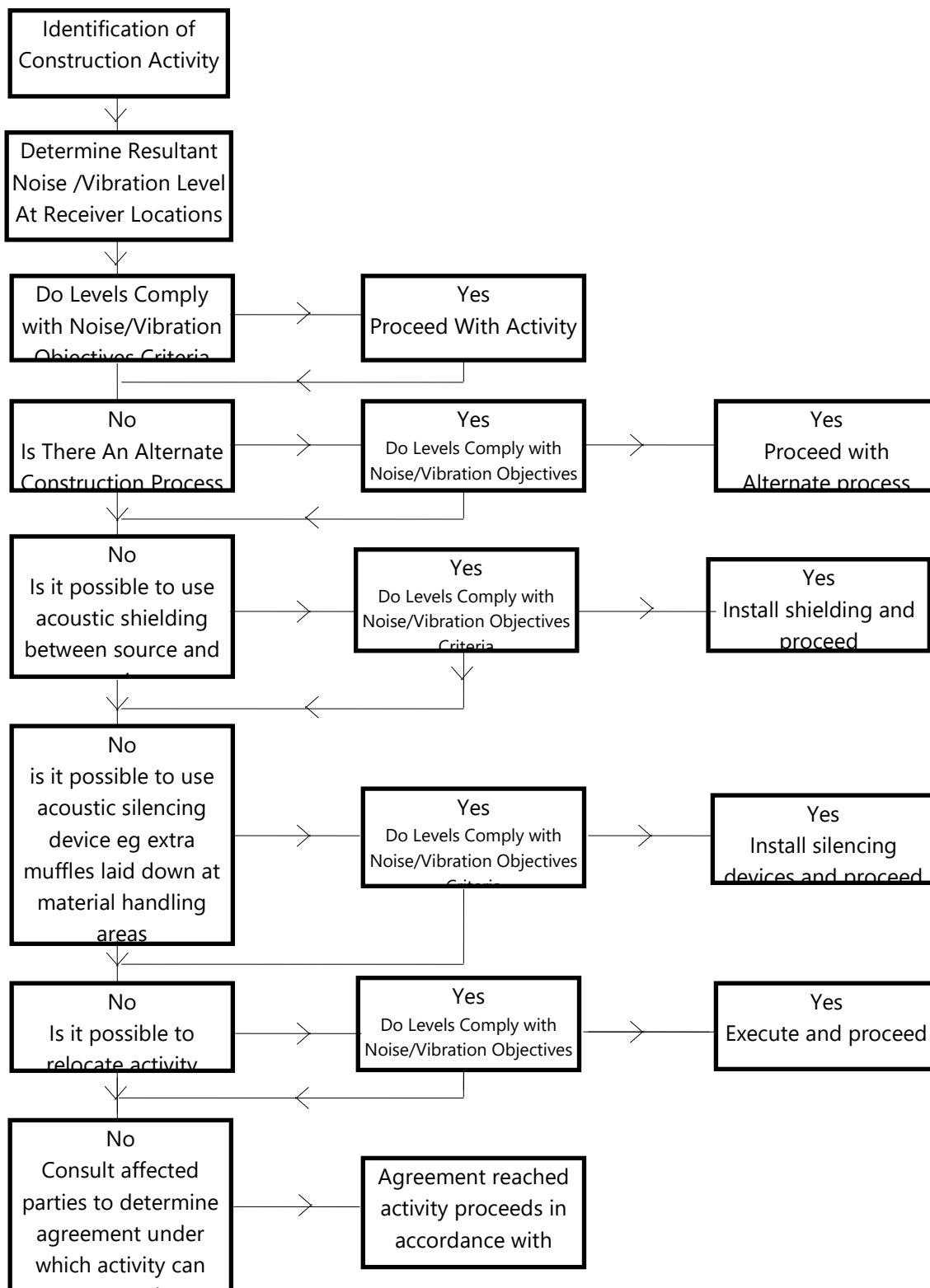


Figure 3 – Process Flowchart

10 NOISE AND VIBRATION CONTROL METHODS

The determination of appropriate noise control measures will be dependent on the particular activities and construction appliances. This section provides an outline of available methods.

10.1 SELECTION OF ALTERNATE APPLIANCE OR PROCESS

Where a particular activity or construction appliance is found to generate excessive noise levels, it may be possible to select an alternative approach or appliance. For example; the use of a hydraulic hammer on certain areas of the site may potentially generate high levels of noise. By carrying this activity by use of pneumatic hammers, bulldozers ripping and/or milling machines lower levels of noise will result.

Selection of alternative appliances have been explored for the demolition of the existing structure. Due to safety concerns, particularly in relation to slab and structural loading, large excavator mounted milling will not be feasible.

Pre-drilling, saw cutting and ripping may be incorporated in the excavation of the existing base slab. Whilst hammering may still be required, the substitution of drilling, sawing and ripping will reduce degree of hammering required.

10.2 ACOUSTIC BARRIER

Barriers or screens can be an effective means of reducing noise. Barriers can be located either at the source or receiver.

- The placement of barriers at the source is generally only effective for static plant (tower cranes). Equipment which is on the move or working in rough or undulating terrain cannot be effectively attenuated by placing barriers at the source.
- Barriers can also be placed between the source and the receiver however this will not be beneficial in this instance due to receivers overlooking the site.

The degree of noise reduction provided by barriers is dependent on the amount by which line of sight can be blocked by the barrier. If the receiver is totally shielded from the noise source, reductions of up to 15dB(A) can be expected. Where only partial obstruction of line of sight occurs, noise reductions of 5 to 8dB(A) may be achieved. Where no line of sight is obstructed by the barrier, generally no noise reduction will occur.

As barriers are used to provide shielding and do not act as an enclosure, the material they are constructed from should have a noise reduction performance that is approximately 10dB(A) greater than the maximum reduction provided by the barrier. In this case the use of a material such as 10mm or 15mm thick plywood (radiata plywood) would be acceptable for the barriers.

10.3 SILENCING DEVICES

Where construction process or appliances are noisy, the use of silencing devices may be possible. These may take the form of engine shrouding, or special industrial silencers fitted to exhausts.

10.4 MATERIAL HANDLING

The installation of rubber matting over material handling areas can reduce the sound of impacts due to material being dropped by up to 20dB(A).

10.5 TREATMENT OF SPECIFIC EQUIPMENT

In certain cases, it may be possible to specially treat a piece of equipment to dramatically reduce the sound levels emitted.

10.6 ESTABLISHMENT OF SITE PRACTICES

This involves the formulation of work practices to reduce noise generation. It is recommended that all available and reasonable treatments and mitigation strategies presented in this report be adopted to minimise noise emissions from the excavation and construction activities on site.

10.7 COMBINATION OF METHODS

In some cases, it may be necessary that two or more control measures be implemented to minimise noise.

10.8 MAINTENANCE OF PLANT, EQUIPMENT AND MACHINERY

Construction Profile will ensure all plant, equipment and machinery are regularly serviced and maintained at optimum operating conditions, to ensure excessive noise emissions are not generated from faulty, overused or unmaintained machinery.

10.9 STAFF TRAINING AND REPORTING MECHANISM

All construction staff on site, as part of the site induction process, will be informed of the surrounding sensitive receivers on site and the site specific recommendations to reduce noise impacts to these receivers (late starts, respite period, vehicle noise control etc. – refer section 8).

Any complaints received by construction staff must be immediately reported to the site foreman, followed by completion of incident report form and steps detailed in section 11.3 below.

A copy of the recommendations detailed in this report (section 8) and dealing with complaints procedure (section 11.2) will be posted at key areas around the site for easy reference by all staff.

11 COMMUNITY INTERACTION AND COMPLAINTS HANDLING

11.1 ESTABLISHMENT OF DIRECT COMMUNICATION WITH AFFECTED PARTIES

In order for any construction noise management programme to work effectively, continuous communication is required between all parties, which may be potentially impacted upon, the builder and the regulatory authority. This establishes a dynamic response process which allows for the adjustment of control methods and criteria for the benefit of all parties.

The objective in undertaking a consultation processes is to:

- Inform and educate the groups about the project and the noise controls being implemented;
- Increase understanding of all acoustic issues related to the project and options available;
- Identify group concerns generated by the project, so that they can be addressed; and
- Ensure that concerned individuals or groups are aware of and have access to a Constructions Complaints Register which will be used to address any construction noise related problems should they arise.

Community consultation is recommended immediately (as works have already commenced on site), with letterbox notifications to all identified surrounding sensitive receivers (refer section 2). This will include a construction management plan detailing the proposed works on site and duration of each stage.

11.2 DEALING WITH COMPLAINTS

Should ongoing complaints of excessive noise or vibration criteria occur immediate measures shall be undertaken to investigate the complaint, the cause of the exceedances and identify the required changes to work practices. In the case of exceedances of the vibration limits all work potentially producing vibration shall cease until the exceedance is investigated.

The effectiveness of any changes shall be verified before continuing. Documentation and training of site staff shall occur to ensure the practices that produced the exceedances are not repeated.

If a noise complaint is received the complaint should be recorded on a Noise Complaint Form. The complaint form should list:

- The name and address of the complainant (if provided);
- The time and date the complaint was received;
- The nature of the complaint and the time and date the noise was heard;
- The name of the employee who received the complaint;
- Actions taken to investigate the complaint, and a summary of the results of the investigation;
- Required remedial action, if required;
- Validation of the remedial action; and
- Summary of feedback to the complainant.

A permanent register of complaints should be held. All complaints received should be fully investigated and reported to management. The complainant should also be notified of the results and actions arising from the investigation.

The investigation of a complaint shall involve where applicable;

- Noise measurements at the affected receiver;
- An investigation of the activities occurring at the time of the incident;
- Inspection of the activity to determine whether any undue noise is being emitted by equipment; and
- Whether work practices were being carried out either within established guidelines or outside these guidelines.

Where an item of plant is found to be emitting excessive noise, the cause is to be rectified as soon as possible. Where work practices within established guidelines are found to result in excessive noise being generated then the guidelines should be modified so as to reduce noise emissions to acceptable levels. Where guidelines are not being followed, the additional training and counselling of employees should be carried out.

Measurement or other methods shall validate the results of any corrective actions arising from a complaint where applicable.

11.3 REPORTING REQUIREMENTS

The following shall be kept on site:

1. A register of complaints received/communication with the local community shall be maintained and kept on site.
2. Where noise/vibration complaints require noise/vibration monitoring, results from monitoring shall be retained on site at all times.
3. Any noise exceedances occurring including, the actions taken and results of follow up monitoring.
4. A report detailing complaints received and actions taken shall be presented to the construction liaison committee.

11.4 CONTINGENCY PLANS

Where non-compliances or noise complaints are raised, the following methodology will be implemented:

1. Determine the offending plant/equipment/process.
2. Locate the plant/equipment/process further away from the affected receiver(s) if possible.
3. Implement additional acoustic treatment in the form of localised barriers, silencers etc. where practical.
4. Selecting alternative equipment/processes where practical.

12 CONCLUSION

This report presents an assessment of potential noise and vibration impacts associated with the excavation and construction activities proposed as part of the redevelopment of Picton Highschool.

Noise emission predictions to the surrounding sensitive receivers have been detailed in Section 7 and ameliorative treatments to reduce noise impacts are detailed in Section 8.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'Jenna MacDonald', with a stylized flourish at the end.

Acoustic Logic Consultancy Pty Ltd
Jenna MacDonald

Appendix G Construction Soil and Water Management Sub-Plan

Construction Soil and Water Management Sub-Plan

Picton High School Redevelopment

Prepared for: Billard Leece Partnership

Reference No: 30013089

Date: April 2019



Document/Report Control Form

Title:	Construction Soil and Water Management Sub-Plan
Project Name:	Picton High School Redevelopment
Project Number:	30013089
Prepared for:	Billard Leece Partnership

Details of Revisions

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1. Introduction

1.1. Purpose

SMEC Australia Pty Ltd (SMEC) has been engaged by Billard Leece Partnership (BLP) to prepare a Construction Soil and Water Management Sub-Plan (CSWP) for the redevelopment of the Picton Senior High School (the site), located at 480 Argyle Street Picton, NSW 2571.

The redevelopment of Picton High School will accommodate 1,500 students. The project consists of:

- New future-focused permanent teaching spaces
- Covered outdoor learning areas (COLAs)
- Library
- Administration, student and staff support facilities
- Refurbishment of the hall
- Refurbishment of several existing buildings
- Removal of all demountable classrooms
- New special education facilities
- Upgrade of the existing bus and car pickup and drop-off area to increase safety for all users.
(source <https://schoolinfrastructure.nsw.gov.au/schools/picton-high-school/project-overview>)

This CSWP forms part of the technical inputs to clear Consent Condition B20 with State Significant Development SSD8640.

1.2. Objectives of the CSWP

The purpose of this CSWP is to guide construction activities in the management of soil and groundwater to minimise potential impacts to the receiving environment

Implementing this CSWP effectively will also allow the Site Contractor to meet regulatory requirements during site construction activities.

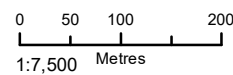
This CSWP has been designed in accordance the following standards and guidelines:

- Managing urban stormwater: soils and construction Volume 1, Landcom, 2004 (the 'Blue Book')
- Managing urban stormwater: soils and construction Volume 2D, Main road construction, Department of Environment and Climate Change, NSW, 2008.



FIG NO. 1-1 **FIGURE TITLE** Regional and Project Setting and Water Features

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09/02/2018



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PROJECT TITLE Picton High School Redevelopment - EIS

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1.3. Development Details

The demolition and construction stages will be detailed during detailed design and seeking to minimise disruption school operational requirements and managed in consultation with the project construction traffic management planning.

In summary staging according to the Picton High School Masterplan is:

Stage 1 – Removal of asbestos from existing buildings.

Stage 2 – Demolition of some of the existing single storey buildings, civil works and earthworks levelling to accommodate prefabricated buildings and associated services, and the delivery of classroom de-mountables.

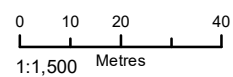
Stage 3 – Construction of new buildings including services, and the construction of the surrounding soft and hard landscaping works.

Stage 4 – Removal of Temporary School and landscaping.



FIG NO. 1-2 **FIGURE TITLE** Proposed Demolition and Construction

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PROJECT NO. 30013089

PROJECT TITLE Picton High School Redevelopment - EIS

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1.4. Assumptions

At this current stage of the planning process there are a few project variables to be defined by the construction contractor and demolition and construction phasing and to provide a more comprehensive ESCP the following assumptions have been made:

- Demolition and construction may occur progressively
- Each stage will have up gradient surface flow managed via existing drainage infrastructure
- Building identified for demolished and renovation will retain operational drainage assets where possible and do not require additional erosion and sediment controls
- Proposed demolition works does / does not include demolition of any roadways or underground utilities associated with stormwater or sewer mains. These may need specific controls implemented during decommissioning if required.

2. Existing Environment

The study area has an elevation of about 165 metres, and is largely flat with a slight swale in the middle of the study area running north/south. The terrain of the study area has been modified as a result of establishing the existing school complex including buildings and sporting facilities. About 150 metres to east of Picton High School are Redbank Creek which flows into Stonequarry Creek and into the Nepean River Both creeks are surrounded by dense remnant or regrowth vegetation.

2.1. Soil landscapes

Reference to the soil conservations service of NSW (1990) *Soil Landscapes of the Wollongong – Part Hacking 1:100 000 Sheet* indicates that the site and study area is underlain by the Blacktown Soil Landscape This is characterised by gently undulating rises on the Wianamatta Group of Shale and Hawkesbury Sandstone, with local relief of 30 metres and slope less than 5%. Soil range from shallow (1 metre) red brown podzolic soils, comprising mostly of clayey soils on crests and upper slopes to deep yellow brown clay soils on lower slopes and areas of poor drainage These soils are typically moderately reactive with low fertility, poor soil drainage and highly plastic subsoils.

2.2. Study area catchment

The study area drains to the Redbank Creek which is a tributary of Stonequarry Creek catchment, which flows into Nepean River 1.3 kilometres to the southeast. The Nepean River flows from west to east before turning north and finally meeting the Hawkesbury River about 50 kilometres to the north.

The study areas immediate catchment boundary is defined by up gradient surface flows being managed by Argyle Street (Old Hume Highway) and Wonga Road stormwater infrastructure. These up gradient areas contain remnant or regrowth vegetation and pasture areas.

Down gradient is an established urban subdivision with curb and gutter drainage via Wood Street and Coachwood Crescent with a likely stormwater discharge point entering Redbank Creek in this location.

The demolitions sub catchments requiring management during construction to control soil and water impacts are further detailed in Section 4.

2.3. Climate

Bureau of Meteorology (BOM) climatic statistics for Picton High School (about 2.7 kilometres from Picton Council Depot) are contained in Table 2.1. Table 2.1 show that rainfall occurs throughout the year although with a slight summer dominance. Temperatures are warm to mild. As a coastal area, winds can be strong at any time of year. Prevailing summer winds are from the north-east, and from the south-east in winter.

Table 2.1 Monthly climate averages for Picton (Willandra Village) Station Number: 66156as at January 2018.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	
Rainfall (mm)	87	90	89	70	56	68		49	45	44	63	72	70	804
Mean no. of days with >1mm	6.9	6.8	7.1	5.7	4.9	5.3		4.6	4.8	5.1	6.2	6.7	6.5	70.6
Mean min temp (°C)	15	15	13	9	6	3		2	3	5	9+	12	14	8.8
Mean max temp (°C)	29	29	27	24	20	17		17	18	21	24	26	29	23.4
Mean 9am wind speed (km/h)	7	5	5	5	6	5		5	7	8	9	9	7	6.3

2.4. Surface water quality

Stonequarry Creeks catchment is a peri-urban catchment. Agricultural activities and urban growth in the Stonequarry Creeks catchment has impacted on the water quality of the creek. The water quality of Stonequarry Creeks is likely to be characteristic of an urbanised catchment with intermittent flows.

2.5. Erosion Hazard Areas

In accordance with Section 4.4.2 of the Blue Book, areas which pose a ‘high’ erosion hazard are those which have a Soil Loss Class (SLC) of 5 or greater. This equates to a calculated soil loss of greater than 500 (tonnes / hectare / year). Soil loss equations for construction catchments have been provided in Section 4 of this report.

Common areas which would present a high risk of soil erosion and resulting environmental impacts include areas of concentrated flows and locations where surface gradients and slope lengths combine to increase the erosive potential of stormwater runoff. During the construction phase these locations would typically include:

- Road embankments and cut faces
- Stormwater asset realignments
- Culverts and drainage outlets
- Cut to fill for site levelling and embankments.

2.6. Environmentally Sensitive Receiving Areas

Sensitive areas in proximity to the study area include:

- To north east of the project are Stonequarry Creeks and Redbank Creek and surrounding heavily vegetated areas of remnant or regrowth vegetation
- There are remnant trees in the north east corner of the development
- One small farm dam 230 metres south of the project (south of Wonga Road)
- Two medium farm dams between 650 metres and 700 metres to the south of the project
- Agricultural landuse to the west.
- Urban residential subdivision immediately to the north.

3. DESIGN CRITERIA AND ASSUMPTIONS

The Preliminary ESCP and the associated calculations and drawings have been prepared based on the concept design for drainage.

The proposal involves the demolition of all residential structures and leaving the road pavement, footpaths and stormwater drainage intact.

3.1. Demolition Staging

The proposal corridor is highly constrained by a number of important factors to be considered during demolition staging. Construction planning must consider the following factors:

- Gently sloping terrain
- Presence of endangered ecological communities that require vegetation clearing to be minimised to the extent possible
- Adjoining residential dwellings immediately to the north.

Collectively these constraints present significant spatial challenges for the proposal to meet typical Blue Book objectives. A number of design inputs, construction methodology and property acquisition are required for final catchment size calculations in accordance with the Blue Book during detailed construction planning. Additional construction sub staging is required to assess catchments at intersections to manage traffic flows, up gradient offsite water diversions or drainage cross overs and existing stormwater asset decommissioning are not assessed in this report.

3.2. Construction Catchments

Preliminary construction catchments have been identified for the entire length of the proposal in accordance with the proposed design (refer to Appendix B Figure 1). Each construction catchment has been assessed in principle with Blue Book and using the Revised Universal Soil Loss Equation (RUSLE) to determine the need for likely sediment basin locations.

The design of construction catchments followed a best practice management approach in accordance with the Blue Book which included the following considerations:

- A maximum value / worst case scenario has been adopted for design input data
- Slope lengths have been calculated as the distance from the origin of overland flow along its flow path to the location of either concentrated flow or deposition
- Where required (e.g. intersections) catchments were sized to be inclusive of all sub stages to improve efficiency of control implementation.

Review of catchment sizing will be required at construction to reflect available lands due to acquisitions and contractor construction phasing. Up gradient urban stormwater catchments may also need to be considered in some events where offsite water diversion controls are being temporarily or permanently impacted.

3.3. Design Parameters

In accordance with the Blue Book, Table 3.1 details the design parameters which have been used to estimate the RUSLE for each identified construction catchment of the proposal. Additional RUSLE calculations may need to be reviewed subject to detailed construction staging and planning details based on revised slope length and gradient factors.

Table 3.1 Demolition catchment assessment parameters.

Parameter	Value	Blue Book Reference
Sediment Type	Blacktown Soil Landscape – Type D	Table C21 Wollongong Port Hacking
Soil Hydrological Group	Blacktown Soil Landscape – Group C	Table C21 Wollongong Port Hacking
Volumetric Runoff Coefficient (Cv)	0.64	Table F2 in Appendix F
Rainfall Data	5 day / 85 th %ile / 34 mm	Table 6.3(a)
Rainfall Erosivity (R factor)	2,500	Appendix B, Map 11
Soil Erodibility (K factor)	Blacktown Soil Landscape – 0.038	Table C21 Wollongong Port Hacking
Erosion Control Practice (P factor)	1.3 (compacted and smooth)	Appendix A Table A2
Ground Cover and Management Factor (C factor)	1	Appendix A Section A6

3.3.1. Slope length and gradient factor

The slope length and gradients have been measured using each designated flow path length. The values have been used to calculate the slope length (LS) factor using Table A1 of the Blue Book.

3.3.2. Erosion control practice factor

A default P factor of 1.3 has been adopted. This reflects a worst case scenario ‘compacted and smooth’ surface condition of the site.

3.3.3. Ground cover and management factor

A default C factor of 1 has been adopted. This reflects a worst case scenario cover factor where topsoil has been stripped.

4. Catchment Risk Assessment

4.1. Construction Catchment Sizing

Catchment sizing is based on the proposed construction activity area, project engineered elements like new pavement, new drainage features and temporary school facilities required during the construction phase schedules. The requirement for sediment basins has been considered throughout the concept design process. Placement of proposed basins have been assessed for co-location potential with the proposed permanent operational water quality basins or detention tanks.

Sizing of catchments may need to be further defined once construction staging planning is underway. Provisions for potentially larger up gradient stormwater catchments would be taken into consideration during higher risk activities for example: redirecting live stormwater assists, or when bridge deck surface water is connected to site water.

4.2. Erosion Risk Hazard and High Risk Area

An evaluation of the erosion risk was made using the RUSLE methodology. The RUSLE formula is outlined below:

$$A = R \times K \times LS \times P \times C$$

Where:

- A is computed soil loss (tonnes/hectare/year)
- R is rainfall erosivity factor
- K is soil erodibility factor
- LS is slope length and gradient factor
- P is soil conservation practice factor
- C is ground cover factor.

The values identified in Table 3.1Section 3.3 have been used in the assessment of each construction catchment. Construction catchments for Stage 1-4 construction phases is detailed in Appendix A Figure 1.

The designer (Bonacci Group Pty Ltd) has recommended not applying the RUSLE in calculation due to its recommendation for the site representing a low erosion hazard. Soil and water management computation for the construction catchments are included in Appendix B.

4.3. Soil Loss Results

As detailed in Section 6.3.2 (d) of the Blue Book 'the building of a sediment retention basin can be considered unnecessary' if the computed soil loss from a catchment is less than 150 m³ per year. For all catchments, which exceed this requirement, a sediment basin is required.

Where the construction contractor chooses to vary the size of a construction catchment (e.g. through a change in construction staging) and final design and property acquisitions, further assessment of the soil loss from the catchment should be undertaken to confirm if a sediment basin will be required in accordance with the Blue Book.

The "Soil Loss Class" is a measure of erosion hazard that underpins the erosion control aspects of these guideline.

The current calculation of the soil loss class according to Soil and Water Computation provided by the drainage designer (Bonacci Group Pty Ltd), rates the site as low risk for soil loss. Calculations are provided in provided in Appendix B.

5. Erosion and sediment control planning

5.1. Key Management Strategies

Key management strategies for erosion and sediment control plans are to include:

- Minimise extent and duration of construction disturbance
- Ensure /separation of offsite water from site water
- Use erosion control measures to prevent offsite impacts
- Inspect and maintain erosion controls measures
- Progressively stabilise and/or rehabilitate disturbed areas as soon as operationally possible.

5.2. Primary and Progressive ESCP

The best practice management guidance for the construction of main roads and highways is provided in Soils and Construction Volume 1 Managing Urban Stormwater (Landcom, 2004) to assist in planning and implementation of appropriate controls to minimise soil erosion and control sedimentation. The purpose of these documents is to outline the intentions and fundamental principles that would be followed in the planning and implementation of erosion and sediment control measures for the proposal.

The primary ESCP contains detailed background information, risk assessment and discussion, while a series of subordinate progressive ESCPs provide up-to-date detail regarding location and installation of control measures.

Progressive ESCPs are typically developed as the project proceeds, as site conditions evolve and as flow paths are changed. Over the construction and/or maintenance phase of a project, a series of progressive ESCPs would be prepared to address all stages of the work and to provide the necessary levels of flexibility. The following steps should be undertaken prior to construction within each designated catchment area.

- A series Progressive Erosion and Sediment Control Plan (PESCP) should be prepared which details the controls and management actions implemented to minimise soil and water impacts for construction staging and at specific discharge points and revised as necessary.
- Site personnel charged with the responsibility for implementation of the PESCP should have appropriate knowledge and experience in erosion and sediment control management in accordance with the Blue Book Volume 1 and Volume 2D.
- Where permitted by design, an offsite water diversion bank or similar should be constructed at the top of the construction activity zone or catchment to divert offsite water (offsite water) around the area of disturbance (refer to plans in Appendix C for catchment boundaries). Section 5.3 further details how offsite water diversions may be constructed.
- Where required, install sediment containment measures (e.g. excavated sumps, sediment fence, sandbag traps to treat runoff from the disturbed catchment area. Placement of these control measures are restricted to the available space within the project boundary and preferably outside of the construction zone. Where space is restricted, the capacity of sediment containment measures may be reduced by separating the catchment into smaller portions by way of diversion banks or temporary cut drains.

5.3. Standard Controls

The following erosion and sediment controls are indicative of controls to be used to manage soil and water impacts during construction. Table 5.1 details the relevant section from the Soils and Construction Volume 1 (Landcom, 2004) and Volume 2D (DECC, 2008) where the drawings are detailed. Controls should be implemented where appropriate and maintained to ensure proper function.

Selection of control measures requires the following:

- Identifying the problem (erosion or sedimentation) to be managed
- Where the problem is erosion, identifying whether it is caused by raindrop impact or concentrated flow
- Where the problem is sedimentation, identifying if sediment is conveyed by sheet or concentrated flow
- Selecting the appropriate techniques depending on the identified specific nature of the problem.

Table 5.1 Standard erosion and sediment controls.

Control	Blue Book Drawing Reference	Blue Book Page Reference
Earth Bank (low flow)	SD 5-5	5-25
Earth Bank (high flow)	SD 5-6	5-26
Concentrated Flow (Batter Chute)	SD 5-7	5-28
Mesh and Gravel Inlet Filter	SD 6-11	6-40
Geotextile Inlet Filter	SD 6-12	6-41
Stabilised Site Access	SD 6-14	6-48
Stockpiles	SD 4-1	4-5
Rock check dams	SD 5-4	5-22
Sediment Fence	SD 6-8	6-36
Sediment Traps at drop inlets	C5	Vol 2D Appendix C, 60

Additional soil and water management notes by the designer for the PESCP is located in Appendix C.

5.3.1. Works Staging

Works are to be staged in the following order for each work stage with the relevant erosion and sediment controls implemented prior to and during each section of works as specified:

- Ensure site boundary limits and no-go areas are defined – Install site barrier fencing (or alternative measures) or maintain existing fencing/walls where suitable. Refer to the ‘Access Control’ notes below.

- Establish stabilised temporary site access/egress points (Standard Drawing SD 6-14), using rumble grids or similar. Refer to the 'Site Entry and Exit Points' notes. These don't need to be installed if existing sealed driveway/s remain intact and sediment tracking is alternatively managed. Locations shown on the plans are indicative only and can be moved to suit demolition. However, note that in doing so, other surrounding ESCPs must still be implemented to same effect.
- Continue using existing street layout for site facilities (e.g. car parking, site sheds, hardstand laydown) and avoid any further ground disturbance until sediment, drainage and erosion controls are in place as outlined below. The principle of minimum disturbance to existing vegetation to be implemented with 'no-go' zones isolated with flagging etc.
- 'Offsite' and 'Site' runoff to be separated.
- Where required, sediment basins and 'offsite' and 'site' water drains to be constructed immediately as permitted.
- Temporary erosion and sediment controls to be installed prior to site disturbance where reasonable and feasible.
- Install Drain Wardens (SD GB – 01) or similar pit protection around any onsite drop inlets (locations to be determined onsite prior to works). Note onsite pits may not be present onsite and in that case, this requirement is not relevant.
- Maintain existing curb and gutters and roadside stormwater drainage as shown to collect and keep offsite water flows outside of the work area (unless specified by others).
- Protect existing storm water drains in roadside and curb with sand bags or gravel socks or similar as per SD 6-11, along all streets.
- Runoff control from formations/tops of fills to sediment basins to be via one or a combination of fill shaping, diversion drains/banks, earth bunds along top edges of fill batters discharging to batter drains and storm water pits etc.
- Install sediment fences, traps and sediment filter outlets (i.e. rock filter outlets or modular sediment traps). This includes installing stabilised outlet points. Refer to the 'Sediment Control' notes and to the plans for details.
- Install containment/diversion bunds (or equivalent) and stabilise by covering with Fabric (or similar). Refer to the drawings for locations and details. In locations where there is a fence or wall present, the wall can be used in place of containment bunds as long as the wall is sealed underneath so water cannot flow through.
- The onsite team is to ensure the proposed slope lengths are adhered to.
- Disturbed areas to be progressively stabilized (e.g. final design treatments such as concrete or revegetation). Where disturbed areas are not being worked for long periods (>30 days), temporary stabilization treatments are to be considered.
- Establish a stockpile area(s) separate materials if required in accordance with the 'Stockpiling' notes.
- Form internal haul roads (truck access road), if required and stabilise in accordance with engineering specifications (e.g. compacted earth with DGB and spray seal finish. To improve and lengthen surface stability trafficable polymers are to be applied to the surfaces (e.g. Vital HR or similar).
- Ground works can now commence to establish site facilities (e.g. material storage, workshop, site office, waste skip, concrete and concrete pump wash out),
- All surfaces excluding the immediate earthworks (cut/excavation works) are to be maintained as stabilised hardstand surfaces. In locations where hardstand surfaces are not formed or to improve and lengthen surface stability trafficable polymers are to be applied to surfaces (e.g. Vital HR or similar).

- Dewatering of excavations, etc. to be conducted as per the requirements of the Site Water Treatment and Discharge Requirements below.
- The tracking of mud/soil material onto local roads to be monitored and controlled (e.g. shaker/rumble grids, manual wheel washing, street sweeper etc.).
- Dust to be controlled on site and along unsealed roads with controls such as water carts and or limiting vehicle speeds.
- Temporary controls to be inspected regularly with maintenance/repairs undertaken as required particularly after rain events.
- This PESMP in Appendix C has been prepared as per 'Blue Book' guidelines and standard drawings - Volumes 1.
- Controls shown on the PESMP are to be installed unless otherwise noted.
- This PESMP to be revised when required (e.g. change in construction methods and/or site conditions).

5.3.2. Access Control

- Install barrier fences or suitable administrative controls to define the project works and clearing limits.
- Barrier fencing for erosion and sediment control purposes can be simply made from tape or flagging around star pickets or stakes. Alternatively, sediment fence, site security /safety fence or chain wire fences can be used for this purpose if so desired. Existing fences and or site fluffing can also be used where they are present in the relevant locations.
- Stabilised site access points (SD 6-14) are to be provided in all locations where construction/demolition vehicles enter and exit the works onto Ivanhoe Pl or public roads.
- Barrier and sediment fencing are to be used to ensure that all vehicles leaving the site pass over stabilised access point to minimise bogginess in these areas and minimise sediment tracking onto public roads.
- Barrier fencing is to be used to delineate all 'no work' areas.
- Barrier fencing is to be used at the discretion of the site manager to delineate other 'No Go' areas.

5.3.3. Soil Management and Stockpiling

- Stockpile areas are to be established within the staged locations specified in the plans. If additional or alternative locations for stockpiling are required, then they are to be subject to approval prior to establishment. All stockpiles should incorporate clearly defined access controls and comply with the regulations outlined below. Progressive ESCPs are to detail the required erosion and sediment controls for each stockpile area.
- All stockpiles are to be constructed and maintained generally in accordance with Standard Drawing SD 4-1 and the following regulations:
 - Potentially contaminated materials are not to be stockpiled with un-contaminated materials or on un-contaminated surface areas. Separate stockpile areas are to be established to ensure this. All stockpiles must have sediment fencing or equivalent installed downslope as per SD4-1.
 - Different materials types (e.g. mulched vegetation, topsoil, subsoil and other materials) are to be stockpiled separately wherever possible.
 - Soil stockpiles are to be stabilised to achieve a C – factor of 0.1 (i.e. equivalent to 60%grass cover) within 10 days of formation using a temporary soil stabiliser (e.g. VitalP74.Stonewall), geotextile, jute matting or equivalent. Also refer to table 1.

- Topsoil stockpile (where practical) should be constructed to no more than 2 meters in height wherever possible.
- Stockpiles should be battered down to a maximum slope of 2:1 wherever possible.

5.3.4. Stabilisation

- Undertake progressive stabilisation of disturbed ground surfaces as they are completed rather than at the end of the works program
- Final stabilisation is to achieve the C – factor (ground cover) detailed in Table 3-1
- Final rehabilitation is to be accordance with the landscaping/rehabilitation plans
- Areas to be revegetated are to be topsoiled first using the topsoil stripped during the initial stages of works (if suitable) or using approved imported topsoil. Refer to Standard Drawings SD4-2) for instructions regarding topsoil replacement
- Appropriate seedbed preparation should be carried out when revegetating lands (See SD 7-1)
- Jute mesh, erosion control matting (ECM), soil stabilisers (e.g. Vital stonewall) hydro mulching or an appropriate approved alternative is to be used to provide suitable ground cover until vegetation is established
- Temporary diversion drains are to be stabilised to achieve the C-factors as detailed in Table 1, using jute matting, geotextile fabric, rock or TRM etc. Refer to the plan for details. Also refer to Standard Drawings SD 5-6 and SD 5-7
- Refer to engineering drawings for any permanent drain size lining detail, if applicable
- Refer to the stockpiling notes for stabilisation requirements of stockpiles. Also refer to Table 1 and SD 4-1 in the Blue Book.
- As surfaces are stabilised (at least 90% of any finished area has at least 70% ground cover and permanent drainage measures are installed, temporary erosion and sediment control structures and water management structures can be removed (e.g. sediment fence and diversion drains).
- Temporary stabilisation on high risk areas will be undertaken prior to rainfall in accordance with the ‘Rainfall Preparation Procedure’ notes
- Highly trafficable areas (i.e. site access egress haul roads) will be stabilised where reasonable and feasible with suitable material such as DGB, roadbase, gravel or Dustex to minimise erosion and provide stability to vehicle movements. In catchments not draining to a sediment basin or sump (i.e. areas shown as stabilised /sealed), stabilisation of haul roads and site compound surfaces is essential.

5.4. Sediment controls

Sediment fencing or alternatives:

- Install sediment fencing in accordance with Standard Drawing SD 6-8.
- Sediment fences must be firmly trenched into the ground for their entire length.
- If sediment fences cannot be trenched into the ground (i.e. If hardstand/pavement surfaces are present) sediment fences can be secured by placing tightly abutting sandbag or coir log bunds over the fabric to hold it down.
- Tightly abutting gravel bags, coir log bunds or sand bags or can also be used in place of sediment fencing where sediment fencing cannot be installed (i.e. on hardstand areas or constantly changing areas). However, gravel bags and sand bags are to be min. 2 bags high and consideration should be given to ongoing traffic and construction movements to avoid damaging the bunds.
- Sediment fences are to be held up by securing to star pickets placed at max. 2.5m centres alternatively they can be securely attached to site security fencing.

- Sediment fences must include small ‘returns’ at maximum 20 metre intervals (see Standard Drawing 6-8) to minimise the risk of water flowing along them rather than through them. Sandbag bunds can be used for this purpose if desired.
- If available mulch may be use on in 200 mm high rows instead of sandbags to break up and achieve slope lengths

5.4.1. Sediment Traps/Rock Filter Dams/Modular Sediment Traps

- Sediment traps are to be formed as a sump (detention storage area) with sediment filter outlet.
- Sediment trap sumps may be split throughout the catchment as long as the filter outlets remain as to what is specified within this plan for each overflow point.
- Sediment sump sizing details are specified on the plan.
- Install the filter outlets as either a rock filter or a modular sediment trap in accordance with sizing and details shown on the plan.
- Rock filter dam outlets (if adopted) are to be installed in accordance with IECA SD RFD 01&02.
- Modular traps (if adopted) are to be built as either two sediment fences with straw bales between or as two sediment fences with 15-25 mm aggregate fill in between.
- If the above filter outlets cannot be constructed due to site/construction conditions tightly abutting coir logs or gravel filled bags are to be used as the filter outlet. Ensure the coir logs/bags are securely held in place.
- All filter outlet structures are to be built to incorporate a primary outlet (weir overflow/spillway/to ensure overflows are controlled and are stable.
- It is recommended that gypsum is placed at the inlets to the sediment traps prior to rainfall to help pre-heat site water.
- Sediment is to be removed from sediment traps and filter outlets regularly and filter aggregate/fabric/straw bales replaced as required

5.5. Dust Suppression

- Avoid dust generating activities during dry windy conditions where control options (e.g. wetting) are limited.
- Regularly clean machinery and vehicle tyres to prevent track-out of dust to public roads
- Restrict vehicle speeds on unsealed haul roads to reduce dust generation.
- Dust suppression should be carried out wherever necessary to minimise sediments becoming airborne due to wind erosion.
- Internal access tracks to be maintained/kept wet to prevent dust generation
- An appropriate water source for dust suppression and/or dust suppressant management system (e.g Vital Stonewall, Dustex, Dustguard, or equivalent) must be identified and approved by the site Environment Manager prior to starting construction works.
- Temporary stabilisers (e.g. vital bond-matt P47), geotextile, jute matting or equivalent can be used in non-trafficked areas to assist with dust control.
- Wherever possible haulroad running surfaces to be stabilised with crushed rock, aggregate, road base, a trafficable soil stabiliser or equivalent to assist with dust control on these surfaces.

5.6. Dirt water treatment and discharge requirements

Water accumulation in sediment traps, sumps, trenches, excavations or in any other low points on site can either be:

- re-used for dust suppression or construction purposes; or
- Pumped into a tank, truck or other holding area for later treatment; or
- Treated (If required) and tested in situ, then released off site once it meets the required water quality discharge criteria (see below); or
- Any such discharge of water from the project (i.e. where water is moved off site once it meets the required water quality discharge criteria (see below); or
- Any active discharge of water from the project (i.e. where water is moved offsite via direct action such as pumping rather than flowing off the project (i.e where water is moved offsite via direct action such as pumping rather than flowing off the project as a result of heavy rainfall is to achieve:
 - 50mg/L or less Total Suspended Sediment (TSS)
 - pH 6.5 to 8.5 and
 - hydrocarbon sheens, no visible trace
- Discharge of any site water to the environment or for reuse on site is to be managed through the approved procedure.
- Adequate water quality can be achieved by using gypsum at a rate of approximately 30 kilgram per 100m³ of stormwater. Alternative flocculating agents can only be used if the regulating authority has granted approval. Refer to manufacturer's guidelines.
- Sediment traps must be emptied within 5 calendar days of rainfall event. This includes treating water testing to confirm adequate quality, de-watering and, if required de-silting.
- These de-watering requirements apply to site water accumulating in any sort of excavation, trench, or other ponded water body on the site.
- If water is going to be used within the site for dust-suppression or construction purposes and will drain back into the sediment capture system, it does not require treatment.

5.7. Slope lengths

Slope lengths are to be restricted to 80 metre intervals or smaller across all exposed surfaces prior to and during rainfall.

Diversion bunds/drains, low flow earth banks (SD5-5) or sandbags/equivalent should be installed prior to rainfall events to achieve this where required. However, slope lengths are often naturally minimised due to the topography of the works and in this case additional slope breaks may not be necessary.

5.8. Rainfall preparation procedure

The weather forecast is to be monitored regularly (at least daily and hourly when rainfall imminent). By the site foreman, Environmental Manager (or their representative).

The sump and containment wall available capacity is to be continually assessed and volume/levels increased as required to appropriately manage the expected rainfall (in accordance with construction detail).

Prior to forecast rainfall (> 50% chance of 10mm or more over 24 hours), the following will occur:

- All exposed batters not draining to sediment basin or sump (i.e. exposed site compound surfaces or batter surfaces adjacent to Ivanhoe PI or the nearby creek) are to be stabilised with temporary ground covers (i.e. vital stonewall, P47, geotextile or black plastic or equivalent)
- Batter chutes and check dams are to be installed (if not already in place)
- Progressive ESCPs to detail batter chute locations.

Prior to forecast rainfall (>50% chance of 20mm or more over 24 hours), the following will occur:

- Slope breaks will be pushed up or cut in across large exposed areas to slow down flows and minimise erosion. Refer to slope lengths notes for details.
- Additional bunds and sumps/traps are to be installed for general works areas where required to separate catchments and minimise reliance on sediment ponds (as per Engineering instruction) PESCPs to show details.

5.9. Site Inspection, monitoring and maintenance

Regular site inspections are to be conducted by the site environment manager (or their representative).

At least weekly during normal construction hours:

- Prior to forecast rainfall of 5mm or more over 24 hours; and
- Daily during rain events (if safe to do so); and
- Within 24 hours of the cessation of a rain event that causes runoff (if safe to do so).

Inspections should include documenting any urgent repair maintenance or improvement works. Records are to be kept including details of actions and their close outs.

Additional erosion and sediment controls will be installed as necessary to ensure satisfactory outcomes in keeping with project conditions and best-practice Blue Book guidelines.

This ESCP will be updated or Progressive ESCPs prepared as required.

Sediment or rocks tracked from the site will be removed from public roads as soon as possible (i.e. with street sweepers).

After rainfall, sediment accumulated in trapping devices (e.g. in sediment fences) will be removed a secure location where it can't wash or blow offsite (preferably to an active stockpile).

Weather conditions will be monitored and daily rainfall will be recorded. A BOM weather station is located nearby at Picton (Willandra Village) Station Number: 66156, Opened: 1970, Lat: 33.78°S, Lon: 151.11°E, Elevation: 65 metre and rainfall readings can be used.

Safe storage areas for wastes, fuels, excess concrete and other potential contaminants are to be delineated by the site supervisor.

Adequate supplies of erosion control measures (e.g. geofabric rolls, filter socks or similar) are to be maintained onsite for rapid deployment as required.

If required, water treatment chemical(s) and equipment are to be maintained onsite.

Dust suppression is to be undertaken as required to minimise the risk of offsite dust impacts.

After rainfall, sediment accumulated in trapping devices (e.g. in sediment fences) will be removed a secure location where it can't wash or blow offsite (preferably to an active stockpile).

Weather conditions will be monitored and daily rainfall will be recorded. A BOM weather station is located at Picton Council Depot (10 Margaret Street) about 2.9 kilometres from Picton High School, and rainfall readings can be used. The BOM station details are as follows: Station Number: 068052; Opened: 1880; Lat: 34.17°S, Lon: 150.61°E; Elevation: 165m.

Safe storage areas for wastes, fuels, excess concrete and other potential contaminants are to be delineated by the site supervisor.

Adequate supplies of erosion control measures (e.g. geofabric rolls, filter socks or similar) are to be maintained onsite for rapid deployment as required. If required, water treatment chemical(s) and

equipment are to be maintained onsite. Dust suppression is to be undertaken as required to minimise the risk of offsite dust impacts.

6. Recommendations

It is the contractor's responsibility to prepare detailed erosion and sediment control plans noting the above recommendations and the following measures:

Nomination of a suitably qualified environmental representative on site to complete self-audits and monitor Soil and Water Management Plans.

- Implementation of this plan and responsibility for nomination of a suitably qualified environmental representative to ensure on going monitoring, maintenance and prevention of pollution is the responsibility of the contractor.
- A progressive erosion and sediment control plan is to be prepared for the works should be developed progressively through the constructing phase. PESCP's should be in accordance with the requirements of Managing Urban Stormwater: Soils and Construction (Landcom, 2004) and Managing Urban Stormwater-Volume 2D Main Road Construction (DECC, 2008)
- In locations where proposed post-redevelopment water quality basins are planned outside the demolition footprint, demolition phase sediment basins or other sediment control elements may be located in these places during demolition phase, subject to designs being compatible with subsequent post-redevelopment water treatment requirements
- Sizing of detailed demolition sub-catchments may need to be further defined once detailed demolition staging planning is underway. Provision for potentially larger up gradient stormwater catchments may need to be considered during higher erosion risk activities, such as redirecting live stormwater assists, changes to pavement drainage, or when bridge deck surface water is connected site water.

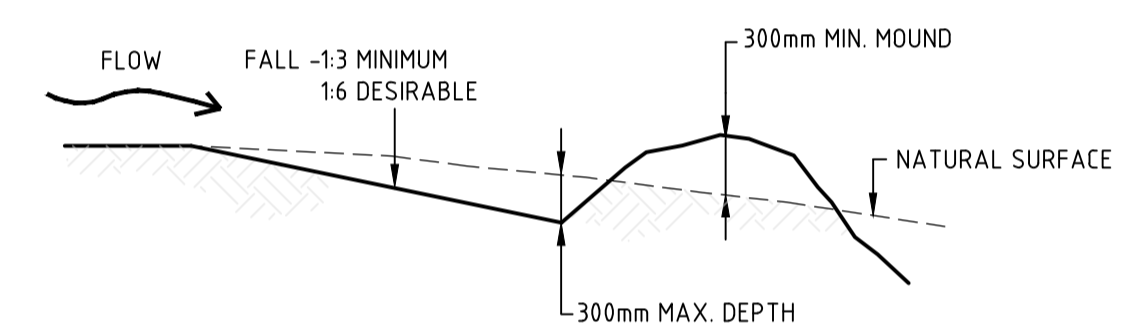
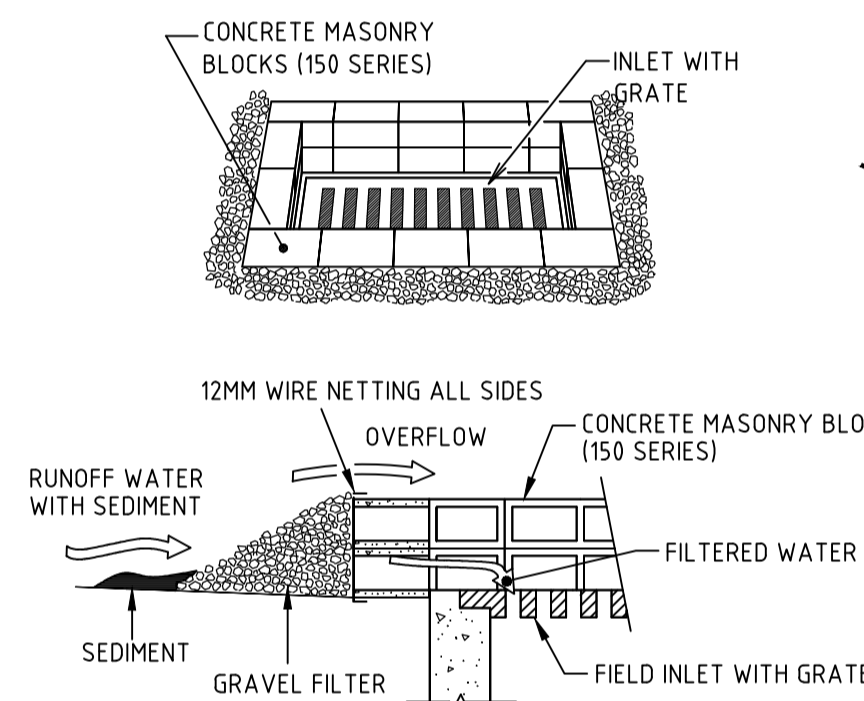
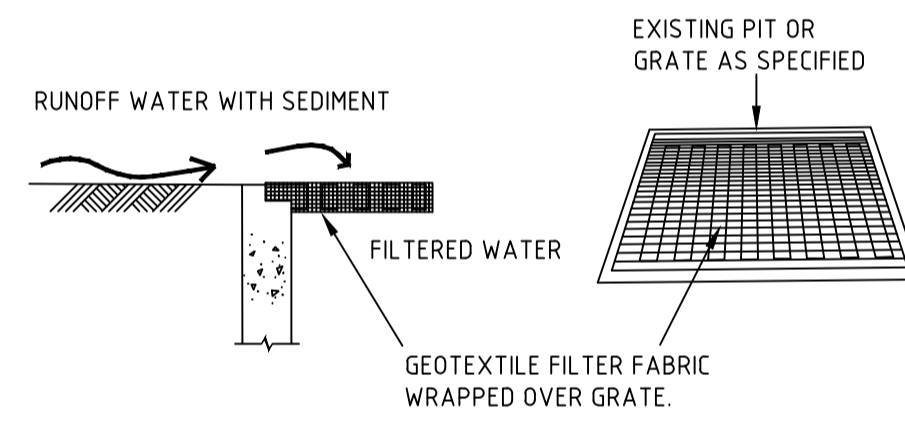
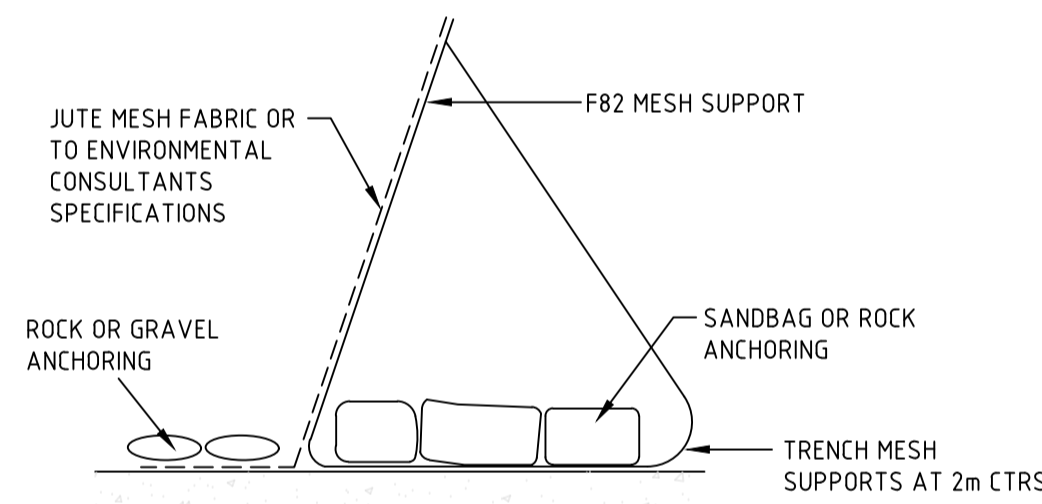
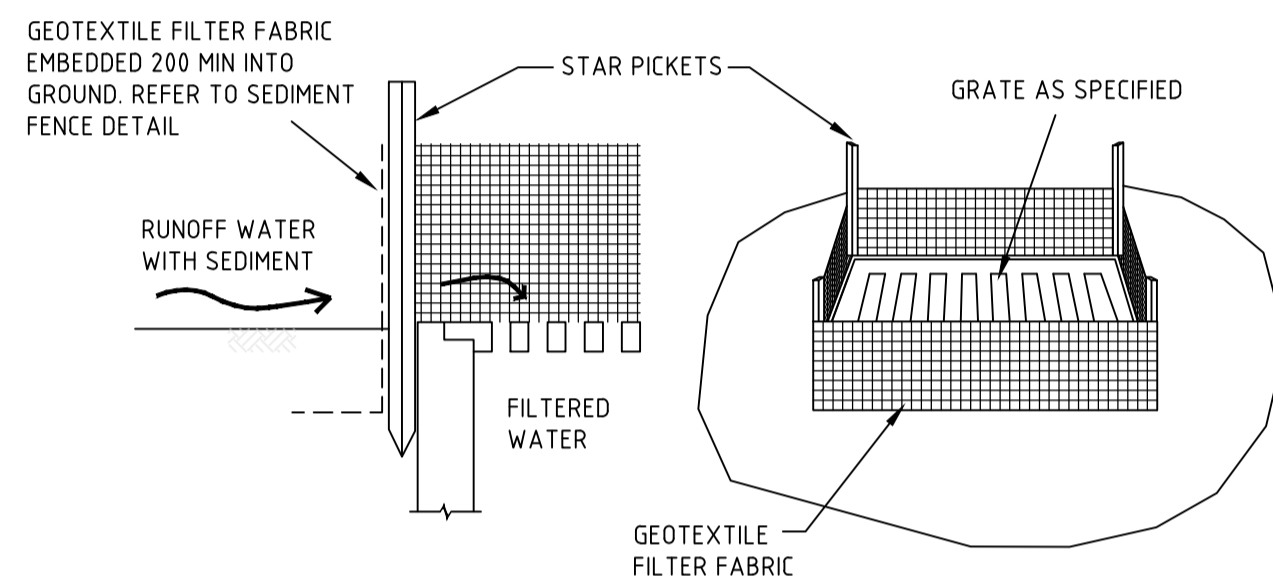
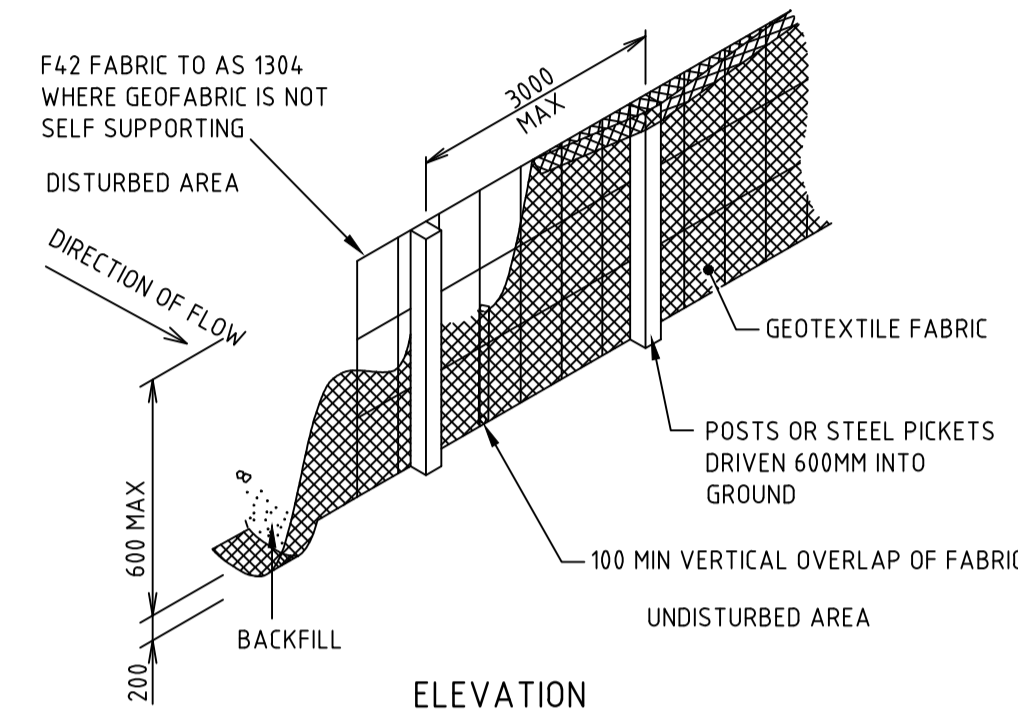
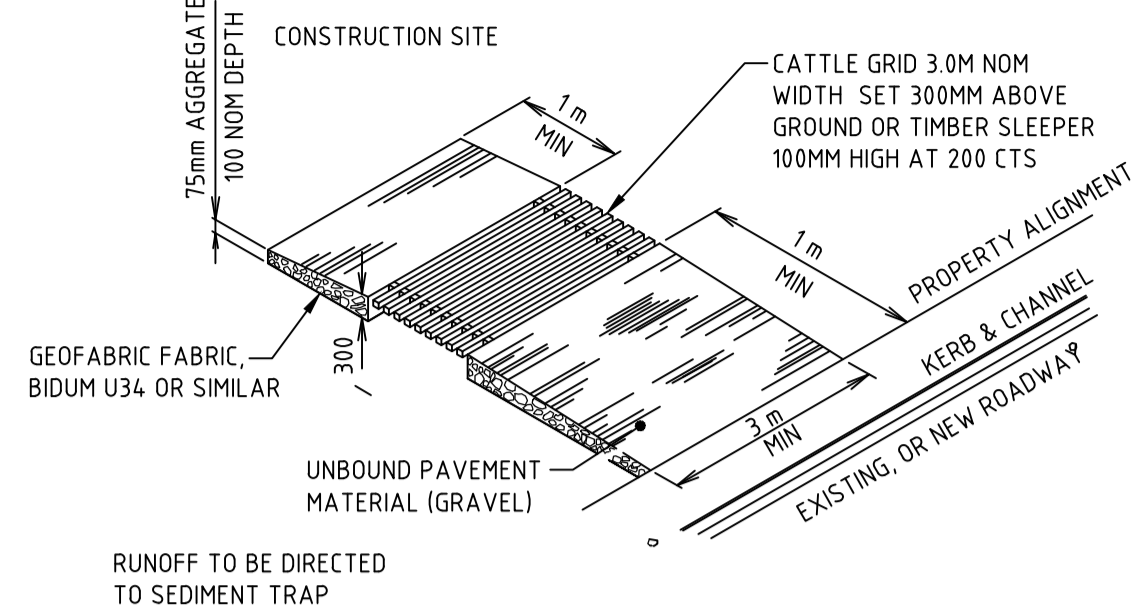
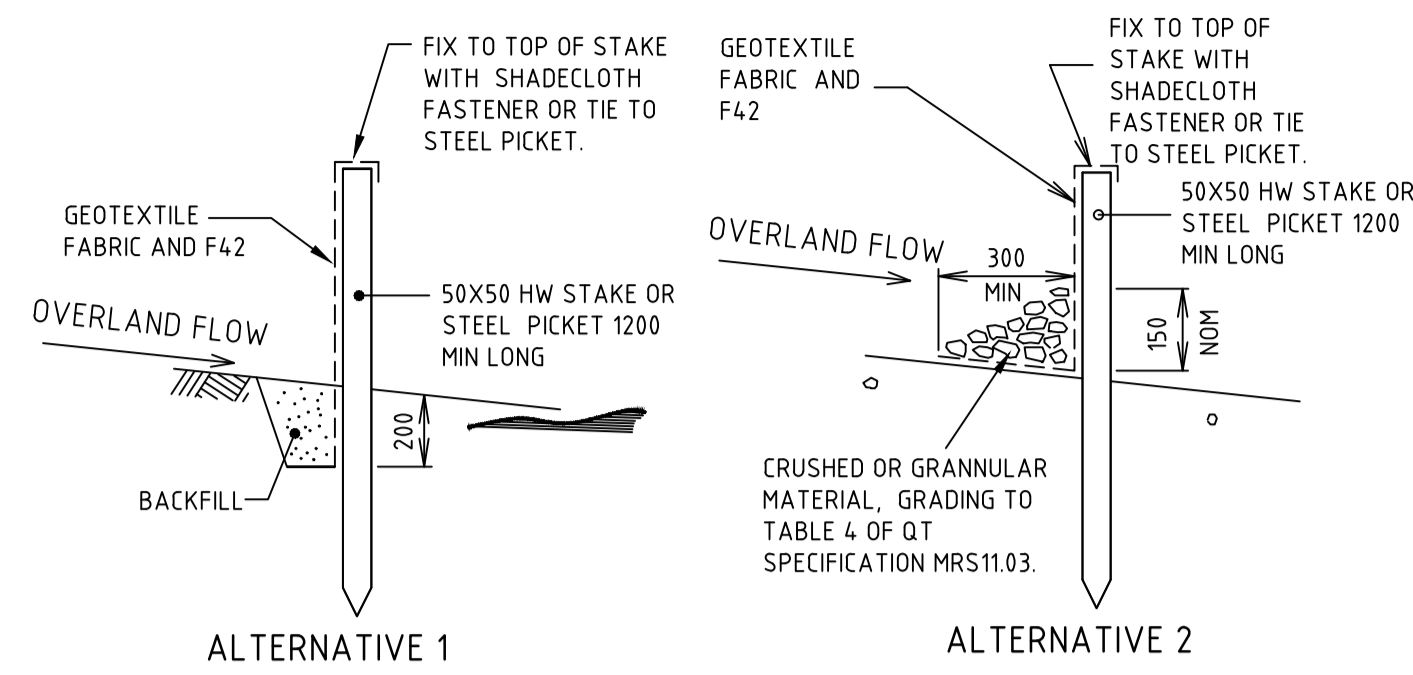
7. References

Managing urban stormwater: soils and construction Volume 1, Landcom, 2004 (the 'Blue Book')

Managing urban stormwater: soils and construction Volume 2D, Main road construction, Department of Environment and Climate Change, NSW, 2008.

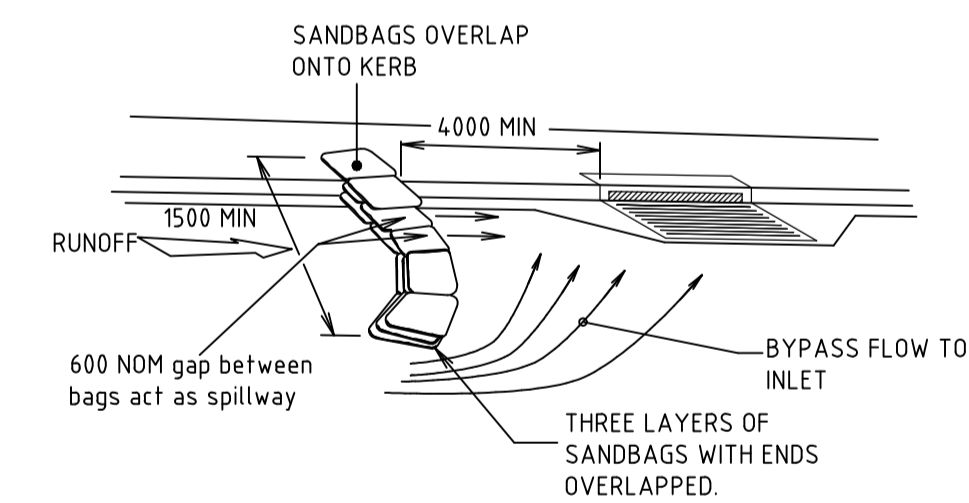
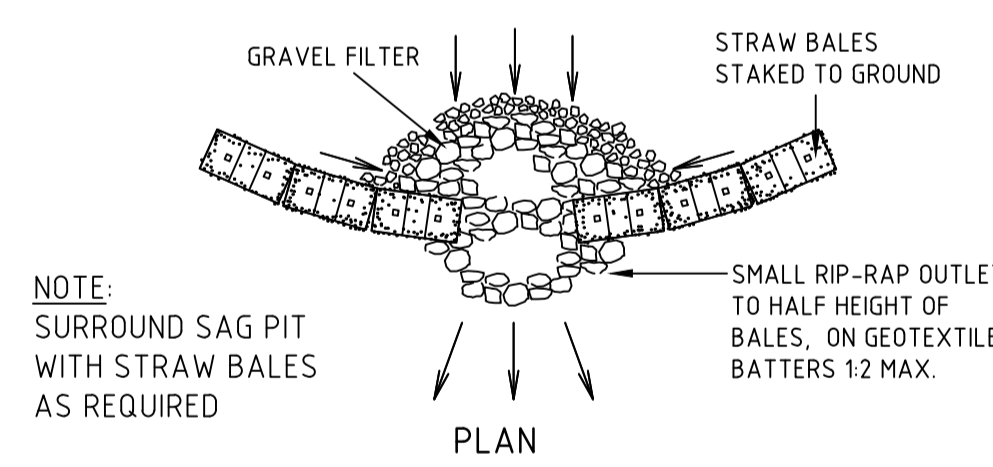
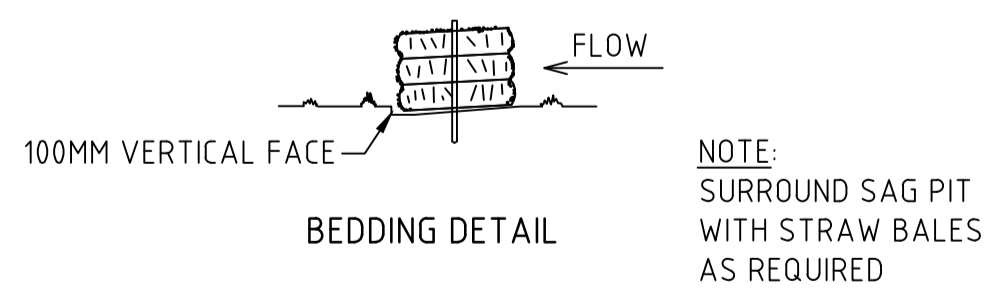
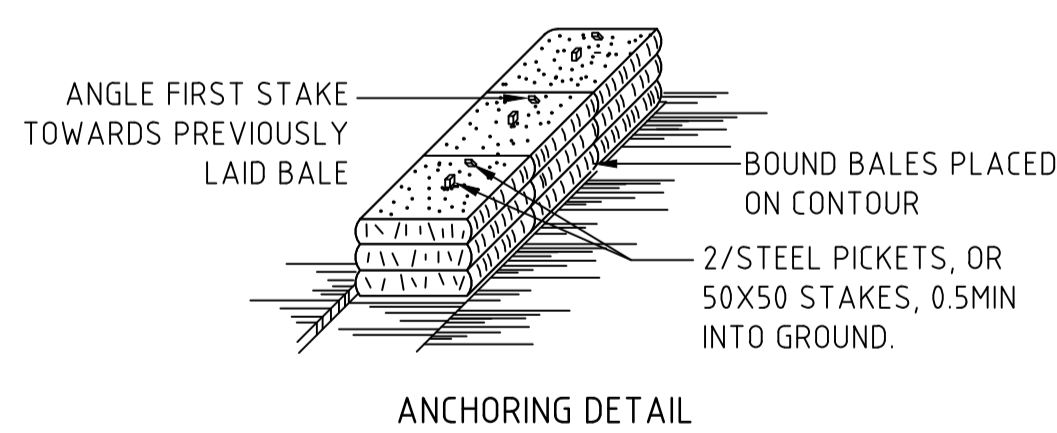
Soil Landscapes of the Wollongong-Port Hacking 1:100,000 sheets, OEH 2004

Appendix A Sediment and Erosion Control Details



ALTERNATIVE SEDIMENT FENCE NOTES

1. INSTALL THIS TYPE OF SEDIMENT FENCE WHEN USE OF SUPPORT POSTS IS NOT DESIRABLE OR NOT POSSIBLE. SUCH CONDITIONS MIGHT APPLY, FOR EXAMPLE, WHERE APPROVAL IS GRANTED FROM THE APPROPRIATE AUTHORITIES TO PLACE THESE FENCES IN HIGHLY SENSITIVE ESTUARINE AREAS.
2. USE BENT TRENCH MESH TO SUPPORT THE F82 WELDED MESH FACING AS SHOWN ON THE DRAWING ABOVE. ATTACH THE JUTE MESH TO THE WELDED MESH FACING USING UV-RESISTANT CABLE TIES.
3. STABILISE THE WHOLE STRUCTURE WITH SANDBAG OR ROCK ANCHORING OVER THE TRENCH MESH AND THE LEADING EDGE OF THE JUTE MESH. THE ANCHORING SHOULD BE SUFFICIENTLY LARGE TO ENSURE STABILITY OF THE STRUCTURE IN THE DESIGN STORM EVENT, USUALLY THE 10 YEAR EVENT.



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Rev	Description	Date	By	App
P6	50% DESIGN DOCUMENTATION	12.07.18	PA	-
P5	50% DRAFT DOCUMENTATION	06.07.18	PA	-
P3	100% SCHEMATIC DESIGN	-	-	-
P2	100% SCHEMATIC DESIGN	22.02.18	CS	-
P1	100% SCHEMATIC DESIGN	09.02.18	CS	-

Rev	Description	Date	By	App
AB	EFSG SIGN OFF ISSUE	30.11.18	DB	SN
AA	DRAFT COORDINATION / EFSG SIGN OFF ISSUE	23.11.18	DB	-



Education



Project Name: **PICTON HIGH SCHOOL REDEVELOPMENT PICTON, NSW 2571**

Drawing Title: **SEDIMENT AND EROSION CONTROL DETAILS**

DESIGN DEVELOPMENT

Designed	CS	Project Director Approved	Date	North
Drawn	CS			
Scale	N.T.S.	Project Ref	Drawing No	Rev
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Appendix B Soil and Water Management Computations

NOTES:

1. K-FACTOR AND GROUP C HYDROLOGIC GROUP BASED ON TABLE C21 "BLUEBOOK" PICTON LANDSCAPE.
2. 5-DAY 85% RAINFALL DEPTH OF 34.1mm CHOSEN AS THE AVERAGE OF CAMDEN AND MITTAGONG LANDSCAPE IN TABLE 6.3a "BLUEBOOK" AS PICTON IS LOCATED IN BETWEEN THESE LOCATIONS.
3. ANNUAL SOIL LOSS AS COMPUTED BY THE RUSLE EQUATION IS 114m³ PER YEAR DUE TO RELATIVELY FLAT SLOPE ON SITE (ASSUMED NOMINALLY 2% AS PROPOSED CONSTRUCTION WILL REQUIRE FLAT SURFACE FOR BUILDING SLAB). CONSEQUENTLY, CONSTRUCTION OF A SEDIMENT BASIN MAY BE UNNECESSARY FOR THE ULTIMATE SCHOOL CONSTRUCTION WORKS AS THE SOIL LOSS IS LESS THAN 150m³/YR (REFER TO SECTION 6.3.2(D) OF THE "BLUEBOOK"). CONTRACTOR IS TO USE ALTERNATE SEDIMENT CONTROL MEASURES SUCH THAT QUALITY OF RUNOFF IS OF AN ACCEPTABLE STANDARD PRIOR TO DISCHARGE.

SWMP Commentary, Detailed Calculations

Note: These "Detailed Calculation" spreadsheets relate only to high erosion hazard lands as identified in figure 4.6 or where the designer chooses to use the RUSLE to size sediment basins. The "Standard Calculation" spreadsheets should be used on low erosion hazard lands as identified by figure 4.6 and where the designer chooses not to run the RUSLE in calculations.

1. Site Data Sheet

Site Name: **Picton High School**

Site Location: **Picton High School**

Precinct:

Description of Site: **Existing Picton High School (area nominally 3.2ha) to be demolished. Temporary School to be non disturbed during demolition of existing school**

Site area	Site						Remarks
	Basin						
Total catchment area (ha)	3.2						
Disturbed catchment area (ha)	3.2						

Soil analysis

% sand (fraction 0.02 to 2.00 mm)										Soil texture should be assessed through mechanical dispersion only. Dispersing agents (e.g. Calgon) should not be used
% 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)
Soil Texture Group										See Section 6.3.3(c), (d) and (e)

Rainfall data

Design rainfall depth (days)	5									See Sections 6.3.4 (d) and (e)
Design rainfall depth (percentile)	85									See Sections 6.3.4 (f) and (g)
x-day, y-percentile rainfall event	34.1									See Section 6.3.4 (h)
Rainfall intensity: 2-year, 6-hour storm	10.6									See IFD chart for the site

RUSLE Factors

Rainfall erosivity (R-factor)	2460									Automatic calculation from above data
Soil erodibility (K-factor)	0.034									
Slope length (m)	80									
Slope gradient (%)	2									
Length/gradient (LS-factor)	0.41									
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				

Calculations

Soil loss (t/ha/yr)	45									
Soil Loss Class	1									See Section 4.4.2(b)
Soil loss (m ³ /ha/yr)	34									
Sediment basin storage volume, m ³	19									See Sections 6.3.4(i) and 6.3.5 (e)

180209 Ultimate School Sed basin Spreadsheet Detailed edi-t2.xls

1

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AB	EFSG SIGN OFF ISSUE	30.11.18	DB	SN
AA	DRAFT COORDINATION / EFSG SIGN OFF ISSUE	23.11.18	DB	-
P2	50% DESIGN DOCUMENTATION	13.07.18	CS	-
P1	100% SCHEMATIC DESIGN	09.02.18	CS	-

Rev	Description	Date	By	App



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Project Name	PICTON HIGH SCHOOL REDEVELOPMENT PICTON, NSW 2571		
Drawing Title	SOIL AND WATER MANAGEMENT COMPUTATIONS		

SCHEMATIC DESIGN

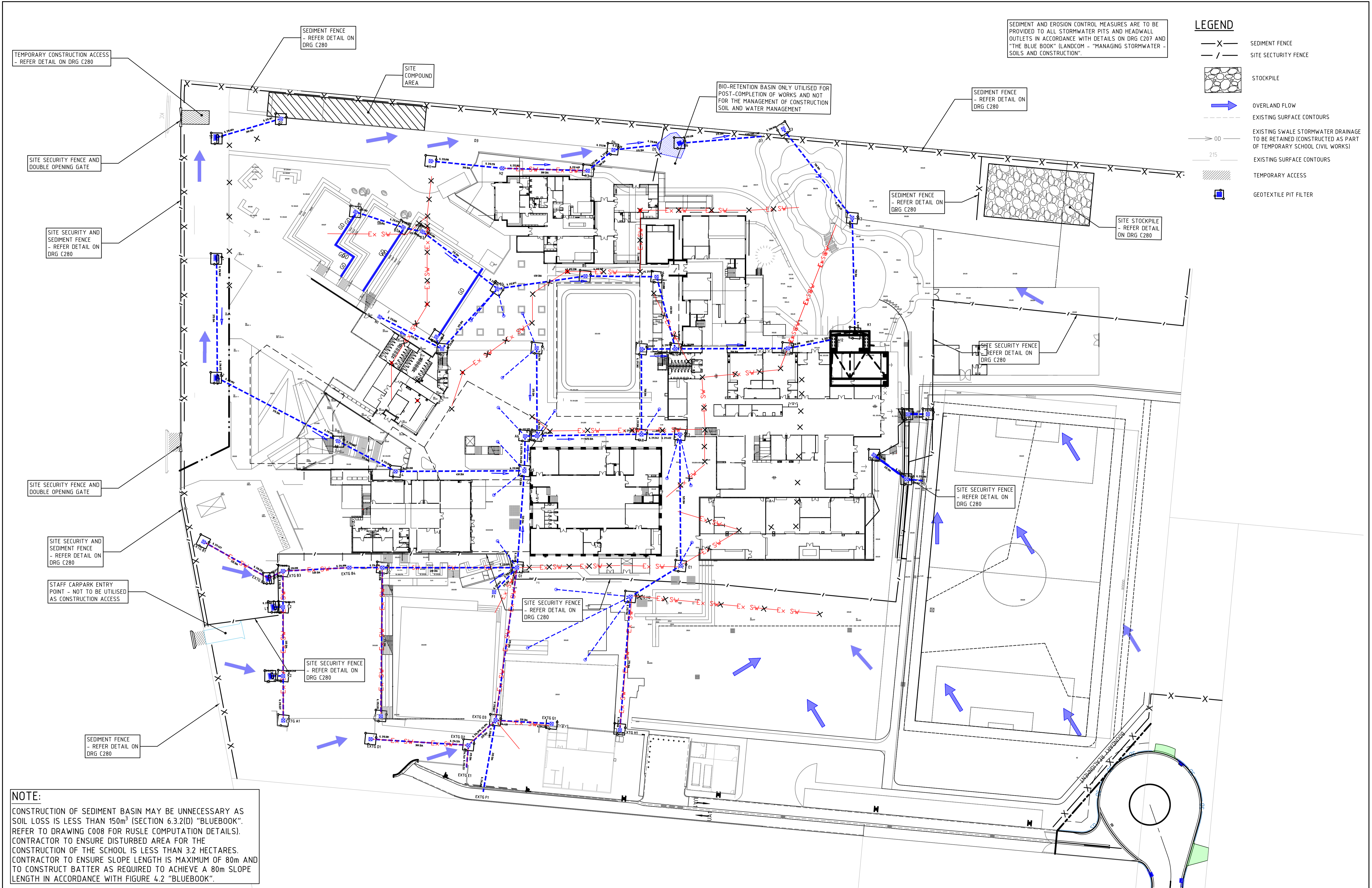
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Drawn	CS			
Scale	N.T.S.	Project Ref	Drawing No	Rev
Date	JAN 2018	20 21786 01	C008	AB
Sheet	A1			

Appendix C Erosion and sediment control elements

Table C1 - STABILISATION REQUIREMENTS AND TREATMENT METHODS

DURING DEMOLITION- TEMPORARY STABILISATION (During periods or site shutdown when works are on hold)				
LANDS	STABILISATION MEASUREMENT	TIMEFRAMES	TREATMENTS METHODS - PRODUCTS	REMARKS
High risk areas; Batters, steep slopes (>30%), works in and around waterways, surfaces around culvert headwalls	C-factor = 0.1 (60% grass cover or equivalent ground cover ¹).	Applies prior to rainfall and after 10 working days of inactivity (even though works might continue later)	Soil binder (i.e. vital P47/Stonewall or equivalent)	- stabilise all exposed surfaces by spraying surfaces with vital P47/stonewall or equivalent - application rate = 1L/m ² of diluted vital mixture. - reapply/maintain as necessary to ensure required cover is provided.
			Geotextile, jute matting, black plastic or equivalent.	- Cover all exposed soils. - Reapply/maintain as necessary to assure the required cover is provided.
All lands (including waterways and stockpiles)	C-factor = 0.15 (50% grass cover or equivalent ground cover)	Applies after 20 working days of inactivity (even though works might continue later)	Soil binder (i.e. Vital P47/Stonewall or equivalent.	- Spray all stockpiled surfaces with Vital P47/Stonewall or equivalent. - Vital dilution rate = 1:10 (Vital: Water). - Application = 1M ² of diluted Vital mixture. - Re-apply/maintain as necessary (approx. every 3/6 months without suitable vegetation cover) to ensure the required cover is provided.
			Geotextile, jute matting, black plastic or equivalent.	- Cover all exposed soils. - Reapply/maintain as necessary to assure the required cover is provided.

C1 Concept Sediment and Erosion Plan



SEDIMENT AND EROSION CONTROL MEASURES ARE TO BE PROVIDED TO ALL STORMWATER PITS AND HEADWALL OUTLETS IN ACCORDANCE WITH DETAILS ON DRG C207 AND "THE BLUE BOOK" (LANDCOM - "MANAGING STORMWATER - SOILS AND CONSTRUCTION").

- LEGEND**
- SEDIMENT FENCE
 - SITE SECURITY FENCE
 - STOCKPILE
 - OVERLAND FLOW
 - EXISTING SURFACE CONTOURS
 - EXISTING SWALE STORMWATER DRAINAGE TO BE RETAINED (CONSTRUCTED AS PART OF TEMPORARY SCHOOL CIVIL WORKS)
 - EXISTING SURFACE CONTOURS
 - TEMPORARY ACCESS
 - GEOTEXTILE PIT FILTER

NOTE:
 CONSTRUCTION OF SEDIMENT BASIN MAY BE UNNECESSARY AS SOIL LOSS IS LESS THAN 150m³ (SECTION 6.3.2(D) "BLUEBOOK"). REFER TO DRAWING C008 FOR RUSLE COMPUTATION DETAILS. CONTRACTOR TO ENSURE DISTURBED AREA FOR THE CONSTRUCTION OF THE SCHOOL IS LESS THAN 3.2 HECTARES. CONTRACTOR TO ENSURE SLOPE LENGTH IS MAXIMUM OF 80m AND TO CONSTRUCT BATTER AS REQUIRED TO ACHIEVE A 80m SLOPE LENGTH IN ACCORDANCE WITH FIGURE 4.2 "BLUEBOOK".

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Project Name: **PICTON HIGH SCHOOL REDEVELOPMENT**
PICTON, NSW 2571

Drawing Title: **CONCEPT SEDIMENT AND EROSION CONTROL PLAN**

DESIGN DEVELOPMENT

Designed	JF	Project Director Approved	Date	North
Drawn	JF			
Scale	1:500	Project Ref	Drawing No	Rev
Date	NOV 2017			
Sheet	A1	20 21888 01	C005	AD

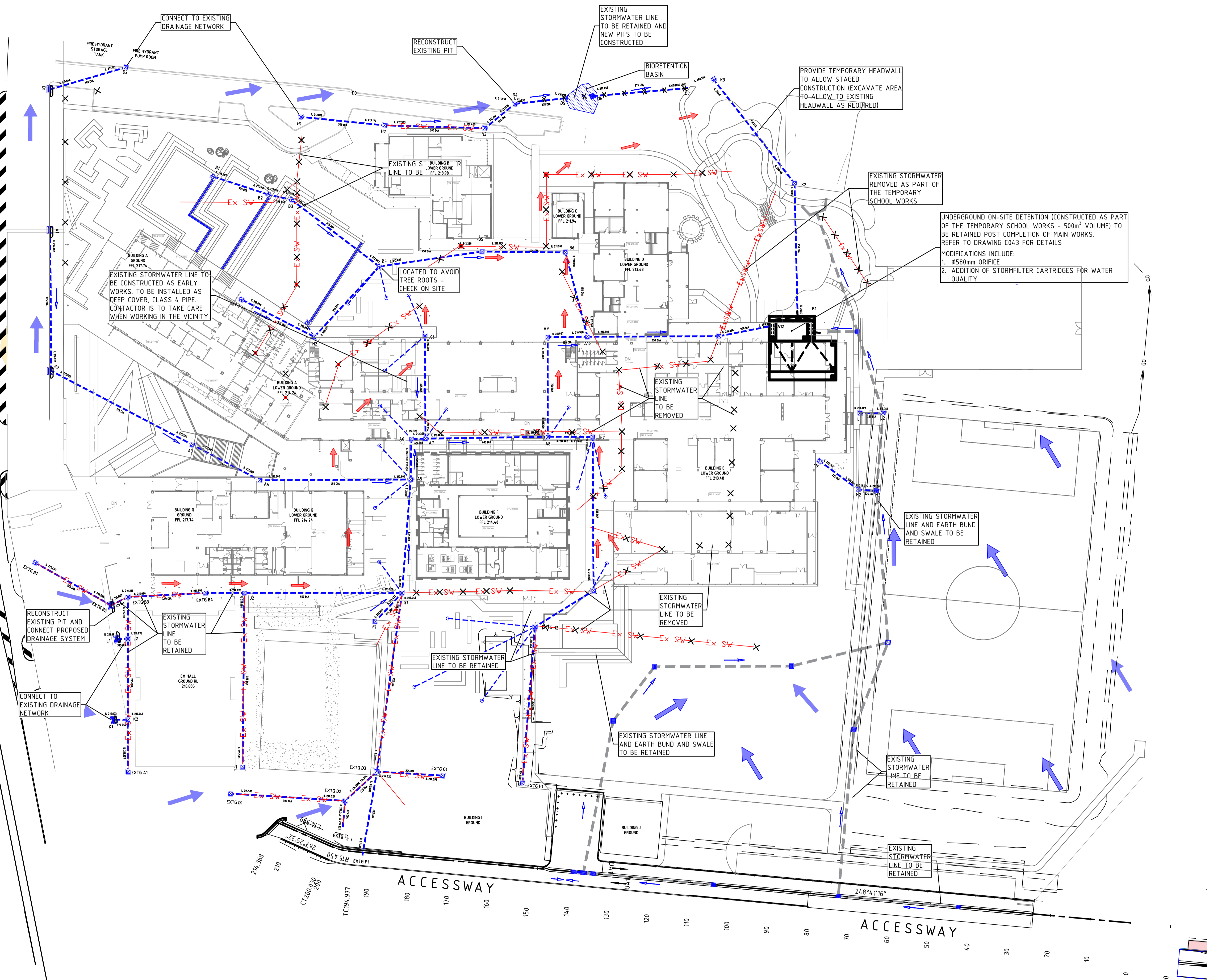
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LEGEND

- STORMWATER LINE
- STORMWATER LINE (EARLY WORKS)
- SURFACE INLET PIT
- EXISTING STORMWATER DRAINAGE TO BE RETAINED (CONSTRUCTED AS PART OF TEMPORARY SCHOOL CIVIL WORKS)
- EXISTING STORMWATER DRAINAGE (CONSTRUCTED AS PART OF TEMPORARY SCHOOL CIVIL WORKS) TO BE REMOVED
- EXISTING SWALE STORMWATER DRAINAGE TO BE RETAINED (CONSTRUCTED AS PART OF TEMPORARY SCHOOL CIVIL WORKS)
- EXISTING SURFACE CONTOURS
- EX SW
- EX SW
- EX SW
- OVERLAND FLOW
- EMERGENCY OVERLAND FLOW
- BIO-RETENTION SWALE

ASSUMED CONSTRUCTION STAGING:

1. DEMOLISH EXISTING BUILDING AS REQUIRED, MAINTAIN STORMWATER CONNECTIONS WHERE POSSIBLE.
2. CONSTRUCT OSD AND LINE TOWARD EXISTING HEADWALL, PROVIDE TEMPORARY HEADWALL TO ALLOW FLOWS UNTIL PIT 12 (EXISTING HEADWALL) IS CONSTRUCTED.
3. CONSTRUCT PIT A11 ON EXISTING LINE TO ALLOW FOR FLOWS FROM EXISTING SYSTEM TO OSD.
4. CONNECT TEMPORARY SCHOOL DRAINAGE STUBS TO OSD.
5. CONNECT UPSTREAM LINES, CONNECTING TO AND RECONNECTING EXISTING LINES AS SHOWN. MAKE EXISTING LINES REDUNDANT AND REMOVE AS SHOWN.



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Project Name: PICTON HIGH SCHOOL REDEVELOPMENT PICTON, NSW 2571
 Drawing Title: CONCEPT STORMWATER MANAGEMENT PLAN

DESIGN DEVELOPMENT			
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JF	JF		
Scale: 1:500	Project Ref: 20 21888 01	Drawing No: C030	Rev: P8
Date: NOV 2017	Sheet: A1		

Appendix H Aboriginal Cultural Heritage Management Sub-Plan & Associated Documents

NOTE: The *Aboriginal Cultural Heritage Management Sub-Plan* is currently in draft format and under review. This CEMP is to be updated to include the Final version of the *Aboriginal Cultural Heritage Management Sub-Plan* when it becomes available.

An *Archaeological Work Method Statement* and a *Letter of Consent to commence demolition of existing buildings* is presented for the purposes of this CEMP and in lieu of the Final version of the *Aboriginal Cultural Heritage Management Sub-Plan*.

AMAC Group & SAS

Billard Leece Partnership
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(02) 8096 4066

AMAC Group &
Streat Archaeological Services
122c Percival Road,
Stanmore, 2048
(02) 9568 6093
consultation@archaeological.com.au
4th April 2019

Dear Mr Lim,

Re: Picton HS - REQUEST FOR A WRITTEN CONFIRMATION

As part of the initial stage, **AMAC has no archaeological or cultural objections** to the commencement of the following:

- Removal of asbestos and demolition of existing buildings with no earth excavation and ground disturbance works
- All subsequent stages of the invasive earthwork, can **only proceed** when the ACHMP report is in place.

Currently, the ACHMP is with the registered Aboriginal parties who, under the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW 2010), referring to Part 6 Approvals under the NPW Act, must be given the opportunity to review and provide feedback to the proponent within a minimum of 28 days.

The closing date for the submissions of comments and feedback is 19th April 2019. Following this a copy of the ACHMP will be distributed to Billard Leece Partnerships.

If you have any questions please contact us and we will be happy to discuss.

Look forward to hearing from you.

Yours sincerely,



Benjamin Streat
Senior Archaeologist
(Aboriginal Heritage)

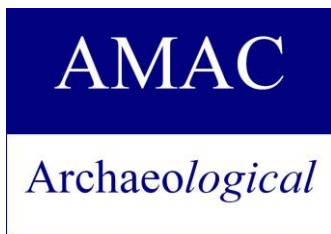


Archaeological Management & Consulting Group and Streat Archaeological Services Pty Ltd

122c Percival Road, Stanmore NSW 2048
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ABORIGINAL CULTURAL HERITAGE MANAGEMENT SUB PLAN

Lot 2 DP 520158
Picton High School Redevelopment
480 Argyle Street
Picton NSW
(Wollondilly Shire LGA)



Benjamin Streat & Yolanda Pavincich

Archaeological Management & Consulting Group
& Streat Archaeological Services

**for
Billard Leece Partnership**

**On behalf of
Department of Education NSW**

**Version 3
March 2019**

Disclaimer

The veracity of this report is not guaranteed unless it is a complete and original copy.

This report may be inaccurate, incomplete, not original, or modified, if it appears in monochrome form and the signature below is a copy.



*Benjamin Street
Director of Aboriginal Archaeology*



Archaeological Management & Consulting Group

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Cover Image

Plan – Roof Plan
Billard Leece Partnership (2017) Drawing No. AA10-0004

ACKNOWLEDGEMENT OF COUNTRY

NSW Department of Education would like to acknowledge the Traditional Custodians of the western Sydney Area– the Dharawal peoples– and pay respect to their cultural heritage, beliefs and continuing relationship with the land.

NSW Department of Education would also like to acknowledge the post contact experiences of Aboriginal peoples who have attachment to the Sydney area.

“We pay our respect to the Elders – past, present and future – for they hold the memories, traditions, culture and hopes of Aboriginal Peoples in the area”.

NSW Department of Education recognises the role of the registered Aboriginal parties in the management of the Aboriginal cultural heritage sites, landscape features and values of this project.

NSW Department of Education would like to thank the Registered Aboriginal Parties for their participation in this project and for their valuable contribution to this Aboriginal Cultural Heritage Assessment which has been enriched by their willingness to share valuable aspects of their cultural knowledge especially in respect of Caring for Country

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DRAFT

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DRAFT

1.0 INTRODUCTION

1.1 BACKGROUND

Archaeological Management and Consulting Group (AMAC) in conjunction with Streat Archaeological Services Pty Ltd (SAS) was commissioned by Billard Leece Partnership on behalf of the Department of Education (DoE) in October 2017, to prepare an Aboriginal Cultural Heritage Assessment for the proposed State Significant Development #8640 Picton High School Redevelopment at 480 Argyle Street, Picton, New South Wales.

In response to the recommendations outlined in the Aboriginal Cultural Heritage Assessment (AMAC, 2018) a programme of test excavation was undertaken, the results of which can be seen in the *Aboriginal Test Excavation Report* (AMAC, 2018). Test excavation resulted in no Aboriginal archaeological material being uncovered and disturbed soils were observed within the study area. These documents were used in the submission of State Significant Development (SSD) application # 8640. The resulting SSD conditions called for the creation of an Aboriginal Cultural Heritage Management Sub – Plan (ACHMSP). This plan conforms to requirement B21 of State Significant Development SSD approval #8640.

B21. The Aboriginal Cultural Heritage Management Sub-Plan (ACHMSP) must address, but not be limited to, the following:

- (a) be prepared by a suitably qualified and experienced expert in consultation with the Registered Aboriginal Parties; and
- (b) be submitted to the satisfaction of the Planning Secretary prior to construction of any part of the development.

An Aboriginal Heritage Impact Permit (AHIP) and associated documentation are not needed as part of this development and its status as a State Significant Development. All such conditions and procedures which were the domain of an AHIP have now been replaced by this Aboriginal Cultural Heritage Management Plan (ACHMP) as required as part of Development Consent (Section 89E Environmental Planning and Assessment Act 1999) and endorsed by the recommendations of the Aboriginal Cultural Heritage Assessment (AMAC 2018) and Test Excavation Report (AMAC 2018).

1.2 STUDY AREA

The study site is that piece of land described as Lot 2 of the Land and Property Information Deposited Plan 520158 forming the following street address 480 Argyle street, Picton, in the Parish of Couridjah, County of Camden.

Address	Lot	Deposited Plan
480 Argyle St	2	520158

1.3 SCOPE

The aims of this Aboriginal Cultural Heritage Management Plan (ACHMP) are to facilitate in the implementation of mitigation and conservation strategies for the study area. The proposed development will impact on intact soil profiles and Aboriginal archaeological

deposits and objects and as such this document outlines the processes that have been set in place to manage this impact on the Aboriginal cultural heritage of the site prior to the proposed development taking place.

Appendix One: Picton High School; Contractor Briefing Document contains a heritage induction to be given to all workers on site to make them aware of the responsibilities they have regarding any unidentified Aboriginal cultural objects and deposits, that are and may be located within the study area. This may be modified outside the review procedures set out in this document (Section 9.0).

Sections 7 contains information on the appropriate course of action to manage the discovery of any human remains or previously unidentified Aboriginal objects on site, including the contact details of OEH, NSW Police, the archaeologist and all RAPs.

1.4 AUTHOR IDENTIFICATION

The analysis of the archaeological background and the reporting were undertaken by Mr. Benjamin Streat (BA, Grad Dip Arch Her, Grad Dip App Sc), archaeologist and Director of Streat Archaeological Services Pty Ltd in association with Ms. Yolanda Pavincich (B. Arch, Grad Dip Cul Her) and under the guidance of Mr. Martin Carney archaeologist and Managing Director of AMAC Group.

1.5 ACKNOWLEDGEMENTS

The author would like to thank the following for advice and/or input into this assessment:

- Ms A. Croker & Mr S. Wood from Billard Leece Partnership;
- Mr I. White from MACE;
- Ms M. Sapsed from Picton High School;
- Kamilaroi – Yankuntjatjara Working Group
- D'harawal Traditional Descendents 's and Knowledgeholders circle;
- Didge Ngunawal Clan;
- Tharawal LALC;
- Biamanga;
- Goobah;
- Murramarang;
- Cullendulla;
- Cubbitch Barta;

Further parties may be added to this list



Figure 1.1 Aerial of study area
Study area outlined in red. Six Maps, LPI Online (accessed 11/10/17).

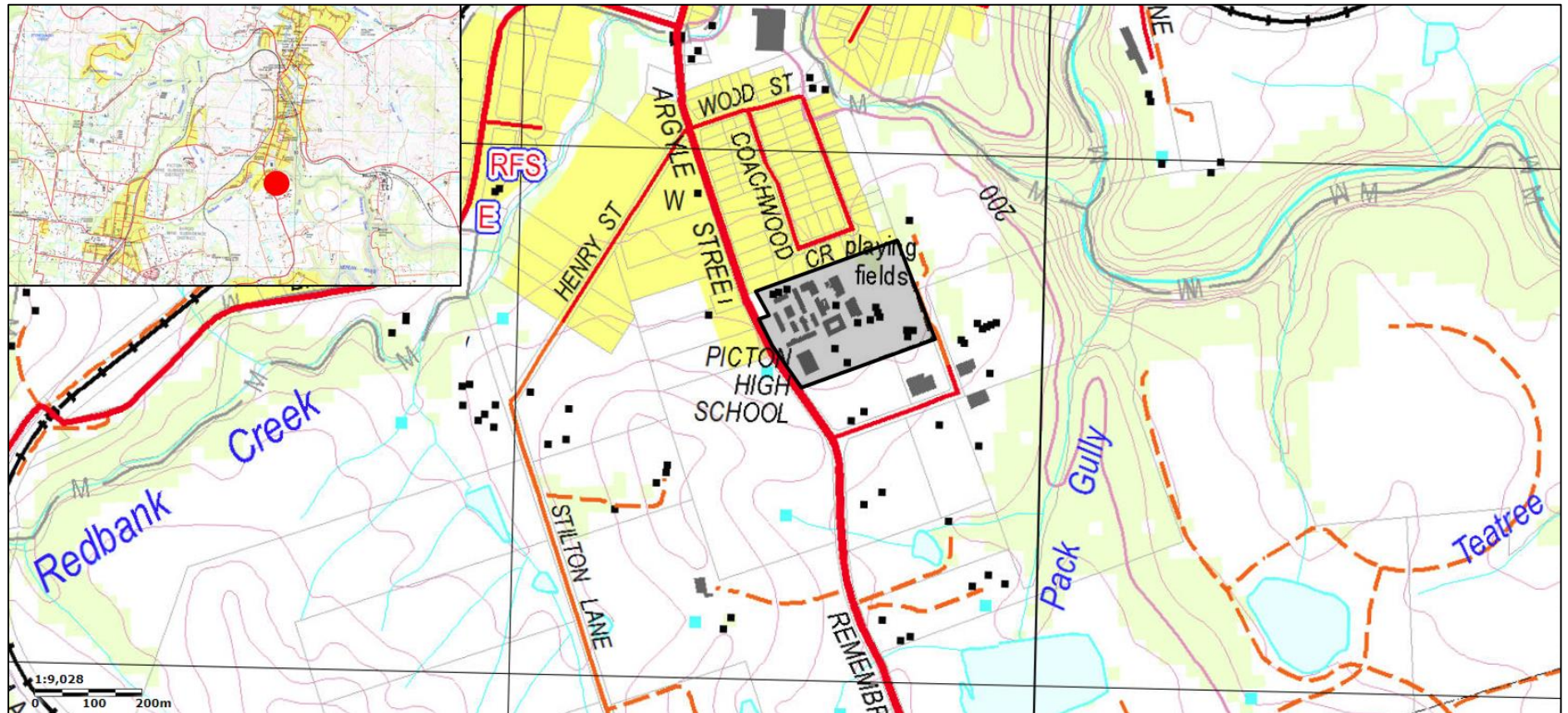


Figure 1.2 Topographic map with site location.
Study area outlined in black. Six Maps, LPI Online, accessed 15/11/2017.

2.0 LEGISLATIVE CONTEXT AND STATUTORY CONTROLS

This section of the report provides a brief outline of the relevant legislation and statutory instruments that protect Aboriginal archaeological and cultural heritage sites within the state of New South Wales. Some of the legislation and statutory instruments operate at a federal or local level and as such are applicable to Aboriginal archaeological and cultural heritage sites in New South Wales. This material is not legal advice and is based purely on the author's understanding of the legislation and statutory instruments. This document seeks to meet the requirements of the legislation and statutory instruments set out within this section of the report.

2.1 COMMONWEALTH HERITAGE LEGISLATION AND LISTS

One piece of legislation and two statutory lists and one non-statutory list are maintained and were consulted as part of this report: the National Heritage List and the Commonwealth Heritage List.

2.1.1 Environmental Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) offers provisions to protect matters of national environmental significance. This act establishes the National Heritage List and the Commonwealth Heritage List which can include natural, Indigenous and historic places of value to the nation. This Act helps ensure that the natural, Aboriginal and historic heritage values of places under Commonwealth ownership or control are identified, protected and managed (Australian Government 1999).

2.1.2 National Heritage List

The National Heritage List is a list which contains places, items and areas of outstanding heritage value to Australia; this can include places, items and areas overseas as well as items of Aboriginal significance and origin. These places are protected under the Australian Government's EPBC Act.

2.1.3 Commonwealth Heritage List

The Commonwealth Heritage List can include natural, Indigenous and historic places of value to the nation. Items on this list are under Commonwealth ownership or control and as such are identified, protected and managed by the Federal Government.

2.2 NEW SOUTH WALES STATE HERITAGE LEGISLATION AND LISTS

The state (NSW) based legislation that is of relevance to this assessment comes in the form of the acts which are outlined below.

2.2.1 National Parks and Wildlife Act 1974

The NSW National Parks and Wildlife Act 1974 (as amended) defines Aboriginal objects and provides protection to any and all material remains which may be evidence of the Aboriginal occupation of lands continued within the state of New South Wales. The relevant sections of the Act are sections 84, 86, 87 and 90.

An Aboriginal object, formerly known as a relic is defined as:

‘any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains’ (NSW Government, 1974).

It is an offence to harm or desecrate an Aboriginal object or places under Part 6, Section 86 of the NPW Act:

Part 6, Division 1, Section 86: Harming or desecrating Aboriginal objects and Aboriginal places:

- (1) *A person must not harm or desecrate an object that the person knows is an Aboriginal object.*

Maximum penalty:

- (a) *in the case of an individual—2,500 penalty units or imprisonment for 1 year, or both, or (in circumstances of aggravation) 5,000 penalty units or imprisonment for 2 years, or both, or*
- (b) *in the case of a corporation—10,000 penalty units.*

- (2) *A person must not harm an Aboriginal object.*

Maximum penalty:

- (a) *in the case of an individual—500 penalty units or (in circumstances of aggravation) 1,000 penalty units, or*
- (b) *in the case of a corporation—2,000 penalty units.*

- (3) *For the purposes of this section, **circumstances of aggravation** are:*

- (a) *that the offence was committed in the course of carrying out a commercial activity, or*
- (b) *that the offence was the second or subsequent occasion on which the offender was convicted of an offence under this section.*

This subsection does not apply unless the circumstances of aggravation were identified in the court attendance notice or summons for the offence.

- (4) *A person must not harm or desecrate an Aboriginal place.*

Maximum penalty:

- (a) *in the case of an individual—5,000 penalty units or imprisonment for 2 years, or both, or*
- (b) *in the case of a corporation—10,000 penalty units.*

- (5) *The offences under subsections (2) and (4) are offences of strict liability and the defence of honest and reasonable mistake of fact applies.*

- (6) *Subsections (1) and (2) do not apply with respect to an Aboriginal object that is dealt with in accordance with section 85A.*

- (7) *A single prosecution for an offence under subsection (1) or (2) may relate to a single Aboriginal object or a group of Aboriginal objects.*

- (8) *If, in proceedings for an offence under subsection (1), the court is satisfied that, at the time the accused harmed the Aboriginal object concerned, the accused did not know that the object was an Aboriginal object, the court may find an offence proved under subsection (2).*

2.2.2 Environmental Planning & Assessment Act 1979

The Environmental Planning and Assessment Act 1979 (EP&A Act) states that environmental impacts of proposed developments must be considered in land use planning procedures. Four parts of this act relate to Aboriginal cultural heritage.

- Part 3, divisions 3, 4 and 4A refer to Regional Environmental Plans (REP) and Local Environmental Plans (LEP) which are environmental planning instruments and call for the assessment of Aboriginal heritage among other requirements.
- Part 4 determines what developments require consent and what developments do not require consent. Section 79C calls for the evaluation of
The likely impacts of that development, including environmental impacts on both the natural and built environments and the social and economic impacts in the locality (NSW Government 1979).
- Part 5 of this Act requires that impacts on a locality which may have an impact on the aesthetic, anthropological, architectural, cultural, historic, scientific, recreational or scenic value are considered as part of the development application process (NSW Government, 1979).

2.2.3 The Aboriginal Land Rights Act 1983

The NSW *Aboriginal Land Rights Act 1983* (ALR Act), administered by the NSW Department of Aboriginal Affairs, established the NSW Aboriginal Land Council (NSWALC) and Local Aboriginal Land Councils (LALCs). The ALR Act requires these bodies to:

- take action to protect the culture and heritage of Aboriginal persons in the council's area, subject to any other law;
- promote awareness in the community of the culture and heritage of Aboriginal persons in the council's area.

These requirements recognise and acknowledge the statutory role and responsibilities of New South Wales Aboriginal Land Council and Local Aboriginal Land Councils. The ALR Act also establishes the Office of the Registrar whose functions include but are not limited to, maintaining the Register of Aboriginal Land Claims and the Register of Aboriginal Owners.

Under the ALR Act the Office of the Registrar is to give priority to the entry in the Register of the names of Aboriginal persons who have a cultural association with:

- lands listed in Schedule 14 to the NPW Act;
- lands to which section 36A of the ALR Act applies (NSW Government, 1974 & DECCW 2010).

2.2.4 The Native Title Act 1993

The *Native Title Act 1993* (NTA) provides the legislative framework to:

- recognise and protect native title;
- establish ways in which future dealings affecting native title may proceed, and to set standards for those dealings, including providing certain procedural rights for registered native title claimants and native title holders in relation to acts which affect native title;
- establish a mechanism for determining claims to native title;

- provide for, or permit, the validation of past acts invalidated because of the existence of native title.

The National Native Title Tribunal has a number of functions under the NTA including maintaining the Register of Native Title Claims, the National Native Title Register and the Register of Indigenous Land Use Agreements and mediating native title claims (NSW Government, 1974 & DECCW 2010).

2.2.5 New South Wales Heritage Register and Inventory 1999

The State Heritage Register is a list of places and objects of particular importance to the people of NSW. The register lists a diverse range of over 1,500 items, in both private and public ownership. Places can be nominated by any person to be considered to be listed on the Heritage register. To be placed an item must be significant for the whole of NSW. The State Heritage Inventory lists items that are listed in local council's local environmental plan (LEP) or in a regional environmental plan (REP) and are of local significance.

2.2.6 Register of Declared Aboriginal Places 1999

The NPW Act protects areas of land that have recognised values of significance to Aboriginal people. These areas may or may not contain Aboriginal objects (i.e. any physical evidence of Aboriginal occupation or use). Places can be nominated by any person to be considered for Aboriginal Place gazettal. Once nominated, a recommendation can be made to EPA/OEH for consideration by the Minister. The Minister declares an area to be an 'Aboriginal place' if the Minister believes that the place is or was of special significance to Aboriginal culture. An area can have spiritual, natural resource usage, historical, social, educational or other type of significance. Under section 86 of the NPW Act it is an offence to harm or desecrate a declared Aboriginal place. Harm includes destroying, defacing or damaging an Aboriginal place. The potential impacts of the development on an Aboriginal place must be assessed if the development will be in the vicinity of an Aboriginal place (DECCW 2010).

2.3 LOCAL PLANNING INSTRUMENTS

2.3.1 Wollondilly Local Environmental Plan 2011

The Wollondilly Shire Local Environment Plan was endorsed in 2011. Heritage Conservation is discussed in Part 5; Clause 5.10. The following section highlights the archaeological considerations of a site in relation to developments:

5.10 Heritage conservation

(1) Objectives

The objectives of this clause are as follows:

- (a) *to conserve the environmental heritage of Wollondilly*
- (b) *to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views,*
- (c) *to conserve archaeological sites,*
- (d) *to conserve Aboriginal objects and Aboriginal places of heritage significance.*

(2) Requirement for consent

Development consent is required for any of the following:

- (a) *demolishing or moving any of the following or altering the exterior of any of the following (including, in the case of a building, making changes to its detail, fabric, finish or appearance):*
 - (i) *a heritage item,*
 - (ii) *an Aboriginal object,*
 - (iii) *a building, work, relic or tree within a heritage conservation area,*
- (b) *altering a heritage item that is a building by making structural changes to its interior or by making changes to anything inside the item that is specified in Schedule 5 in relation to the item,*
- (c) *disturbing or excavating an archaeological site while knowing, or having reasonable cause to suspect, that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed,*
- (d) *disturbing or excavating an Aboriginal place of heritage significance,*
- (e) *erecting a building on land:*
 - (i) *on which a heritage item is located or that is within a heritage conservation area, or*
 - (ii) *on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance,*
- (f) *subdividing land:*
 - (i) *on which a heritage item is located or that is within a heritage conservation area, or*
 - (ii) *on which an Aboriginal object is located or that is within an Aboriginal place of heritage significance.*

(3) When consent not required

However, development consent under this clause is not required if:

- (a) *the applicant has notified the consent authority of the proposed development and the consent authority has advised the applicant in writing before any work is carried out that it is satisfied that the proposed development:*
 - (i) *is of a minor nature or is for the maintenance of the heritage item, Aboriginal object, Aboriginal place of heritage significance or archaeological site or a building, work, relic, tree or place within the heritage conservation area, and*
 - (ii) *would not adversely affect the heritage significance of the heritage item, Aboriginal object, Aboriginal place, archaeological site or heritage conservation area, or*
- (b) *the development is in a cemetery or burial ground and the proposed development:*
 - (i) *is the creation of a new grave or monument, or excavation or disturbance of land for the purpose of conserving or repairing monuments or grave markers, and*
 - (ii) *would not cause disturbance to human remains, relics, Aboriginal objects in the form of grave goods, or to an Aboriginal place of heritage significance, or*
- (c) *the development is limited to the removal of a tree or other vegetation that the Council is satisfied is a risk to human life or property, or*
- (d) *the development is exempt development.*

(8) Aboriginal places of heritage significance

The consent authority must, before granting consent under this clause to the carrying out of development in an Aboriginal place of heritage significance:

- (a) *consider the effect of the proposed development on the heritage significance of the place and any Aboriginal object known or reasonably likely to be located at the place by means of an adequate investigation and assessment (which may involve consideration of a heritage impact statement), and*
- (b) *notify the local Aboriginal communities, in writing or in such other manner as may be appropriate, about the application and take into consideration any response received within 28 days after the notice is sent*

(10) Conservation incentives

The consent authority may grant consent to development for any purpose of a building that is a heritage item or of the land on which such a building is erected, or for any purpose on an Aboriginal place of heritage significance, even though development for that purpose would otherwise not be allowed by this Plan, if the consent authority is satisfied that:

- (a) *the conservation of the heritage item or Aboriginal place of heritage significance is facilitated by the granting of consent, and*
- (b) *the proposed development is in accordance with a heritage management document that has been approved by the consent authority, and*
- (c) *the consent to the proposed development would require that all necessary conservation work identified in the heritage management document is carried out, and*
- (d) *the proposed development would not adversely affect the heritage significance of the heritage item, including its setting, or the heritage significance of the Aboriginal place of heritage significance, and*
- (e) *the proposed development would not have any significant adverse effect on the amenity of the surrounding area*

2.3.2 Wollondilly Development Control Plan 2016

The Wollondilly Development Control Plan was prepared by the Wollondilly Shire Council in 2016. Volume 1 – General Part 7 deals with Aboriginal heritage;

7.1 Objectives

- a) *To achieve appropriate means of conservation, management and protection for archaeological sites, Aboriginal objects and Aboriginal places of heritage significance.*
- b) *To achieve compliance with the requirements of the National Parks and Wildlife Act, 1974 and associated Regulations and guidelines with respect to Aboriginal objects and Aboriginal places of heritage significance.*
- c) *To consider and manage Aboriginal objects and Aboriginal places of heritage significance at the earliest practical stages in the land development process.*

7.2 Controls

An indigenous heritage and archaeological report must be prepared for any development application on land which contains a known Aboriginal object or Aboriginal places of heritage significance. The report must be prepared by a suitably qualified archaeologist. The report must be prepared in accordance with the Code of Practice for Archaeological Investigation of Aboriginal objects in NSW. A report may also be required at the discretion of the assessing officer where:

1. *There is impact or disturbance to the content, or within the immediate vicinity (100 metres) of a known Aboriginal object or Aboriginal place of heritage significance;*

2. *There is impact or disturbance to, or within the immediate vicinity (100 metres) of a previously recorded or known Aboriginal object or Aboriginal place of heritage significance and can include a cultural landscape, an existing or former ceremonial ground, a burial ground or cemetery, a story place or mythological site, a former Aboriginal reserve or historic encampment, or an archaeological site of high significance;*
3. *A proposal (including subdivision) which affects primarily undeveloped land (irrespective of land size) and has the following site features:*
 - *river frontage*
 - *creek line*
 - *sandstone exposures at ground level larger than 5m²*
 - *sandstone cliff line or isolated boulder higher than 2m*
 - *disturbance to the roots, trunk, branches, of old growth trees, which are native to the Wollondilly Shire and greater than 150 years of age.*
4. *Ensure that all works cease in the vicinity of any previously unidentified Aboriginal objects or places identified during excavation and construction and that the following be notified*
 - a) *The Office of Environment and Heritage NSW (OEH)*
 - b) *A qualified archaeologist*
 - c) *Aboriginal stakeholders.*
5. *Ensure that should human skeletal remains be discovered that the following process will be undertaken:*
 - a) *The remains will be reported to the police and the state coroner.*
 - b) *Wollondilly Shire Council and the land owner will be notified of the find.*
 - c) *Aboriginal stakeholders will be notified of the find.*
 - d) *OEH NSW will be notified.*
6. *If the skeletal remains are of Aboriginal ancestral origin an appropriate management strategy will be developed in consultation with the Aboriginal stakeholders.*
7. *The find will be recorded in accordance with the National Parks and Wildlife Act 1974 (NSW) and the NSW NPWS Aboriginal Cultural Heritage Standards and Guidelines Kit.*
8. *The findings will be incorporated into any proposed Aboriginal Heritage Plan's management regime.*

2.4 DUE DILIGENCE CODE OF PRACTICE FOR THE PROTECTION OF ABORIGINAL OBJECTS IN NEW SOUTH WALES

This assessment conforms to the parameters set out in the Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010).

The Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales states that if;

- a desktop assessment and visual inspection confirm that there are Aboriginal objects or that they are likely, then further archaeological investigation and impact assessment is necessary.

2.5 CODE OF PRACTICE FOR ARCHAEOLOGICAL INVESTIGATION OF ABORIGINAL OBJECTS IN NEW SOUTH WALES

Any further work resulting from recommendations should be carried out conforming to the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010).

2.6 GUIDELINES

This report has been carried out in consultation with the following documents which advocate best practice in New South Wales:

- Aboriginal Archaeological Survey, Guidelines for Archaeological Survey Reporting (NSW NPWS 1998);
- Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010);
- Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974, (DECCW 2010);
- Aboriginal Cultural Heritage Standards and Guidelines Kit (NPWS 1998);
- Australia ICOMOS 'Burra' Charter for the conservation of culturally significant places (Australia ICOMOS 1999);
- Part 6; National Parks and Wildlife Act Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010);
- Protecting Local Heritage Places: A Guide for Communities (Australian Heritage Commission 1999).

2.7 STATE SIGNIFICANT DEVELOPEMNT # 8640

SSD # 8640 states the following with regard to Aboriginal Cultural Heritage:

B21. The Aboriginal Cultural Heritage Management Sub-Plan (ACHMSP) must address, but not be limited to, the following:

(a) be prepared by a suitably qualified and experienced expert in consultation with the Registered Aboriginal Parties; and

(b) be submitted to the satisfaction of the Planning Secretary prior to construction of any part of the development.

3.0 ABORIGINAL CONSULTATION

Consultation for this document was undertaken in accordance with the *Office of Environment and Heritage and National Parks and Wildlife Act 1974: Part 6; National Parks and Wildlife Act Aboriginal Cultural Heritage Consultation Requirements for Proponents* (DECCW 2010), for test excavation under the *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales, Part 6 National Parks and Wildlife Act 1974*, (DECCW 2010). However, some deviation from these guidelines has occurred as a result of the implementation of Development Consent (Section 89E Environmental Planning and Assessment Act 1999), SSD # 8640. This deviation constituted a lowering of the response timeframe for the RAPs to the ACHMP from 28 days to a total of 21 days due to time constraints imposed by the proponent.

3.1 OVERVIEW OF ABORIGINAL COMMUNITY CONSULTATION

Consultation for this report has been undertaken in accordance with the Office of Environment and Heritage and National Parks and Wildlife Act 1974: Part 6; National Parks and Wildlife Act Aboriginal Cultural Heritage Consultation Requirements for Proponents (DECCW 2010).

All registered stakeholders were given a copy of a proposed Aboriginal Cultural Heritage research methodology and given 28 days to respond to the Aboriginal Cultural Heritage Assessment Research Design and Testing Methodology.

Archaeological test excavation has been undertaken and resulted in no Aboriginal archaeological and cultural objects and/or deposits being located. The findings of this investigation have been synthesised into a report *Aboriginal Test Excavation Report, Picton High School, 480 Argyle Street, Picton NSW (Wollondilly Shire LGA)*. All registered parties were given 28 days to review and comment on this document.

All registered stakeholders were given a copy of a proposed Aboriginal Cultural Heritage Assessment. All registered parties will have the opportunity to review and comment on this document. All comments were incorporated the report.

All registered stakeholders were given a copy of a Aboriginal Cultural Heritage Management Sub Plan All registered parties were given 28 days to review and comment on this document. All comments were incorporated the report

A full consultation log containing documented evidence and submissions can be available on request however as the testing programme resulted in no archaeological and/or cultural material, only a summary of the consultation has been supplied and a full log is not required.

Table 3.1 Consultation Summary

STAGE 1						
Authority Letters & Advertisement						
Authority Body/ Organisation	Contact Person	Contact Details	Date Sent	Method	Response Rccd	Date
Wollondilly Shire Council	Heritage Officer	Po Box 21, Picton NSW 2571	11/10/2017	Mail	Yes- Email	18/10/2017
Greater Sydney LLS	Heritage Officer	PO BOX 4515, Westfield Penrith NSW 2750	11/10/2017	Mail	No	
Tharawal Local Aboriginal Land Council	Heritage Officer	PO BOX 168, Picton NSW 2571	11/10/2017	Mail	No	
NSW Native Title Services	Heritage Officer	PO BOX 2105, Strewberry Hills NSW 2012	11/10/2017	Mail	No	
NNTT	Heritage Officer	GPO BOX 9973, Sydney NSW 2001	11/10/2017	Mail	No	
NTSCORP	Heritage Officer	PO BOX 2105, Strewberry Hills NSW 2012	11/10/2017	Mail	No	
OEH	Archaeologist	PO BOX 513, Wollongong NSW 2500	11/10/2017	Mail	Yes -Mail	19/10/2017
Office of Registrar	Heritage Officer	PO BOX 112, Glebe NSW 2037	11/10/2017	Mail	Yes-Email	19/10/2017
Newspaper Advertisement:	Wollondilly Advertiser		Date printed:1/11/17		End Period: 18/11/17	
Stakeholders Contacted						
Minimum 14 days to register (25/10/2017) - (08/11/2017)						
Name/Organisation	Contact Person	Contact Details	Date Sent	Method	Notes	
Tharawal LALC	Rebecca Ede	ceo@tharawal.com.au	25/10/2017	Mail		
Wurrumay Consultancy	Kerrie Slater	wurrumay@hotmail.com	25/10/2017	Mail		
Kawul Cultural Services	Vicky Slater	vicki.slater@hotmail.com	25/10/2017	Mail		
Guyuu Cultural Heritage Technical Services	Darlene Hoskins-McKenzie	guyuu@mirramajah.com	25/10/2017	Email		
Bilinga Cultural Heritage Technical Services	Robert Brown	bilinga@mirramajah.com	25/10/2017	Email		
Muyunga Cultural Heritage Technical Services	Suzannah McKenzie	munyunga@mirraiah.com	25/10/2017	Email		
Cullendulla	Corey Smith	cullendullachts@gmail.com	25/10/2017	Email		
Biamanga	Sell Storer	biamangachts@gmail.com	25/10/2017	Email		
Gulaga	Wendy Smith	gulagachts@gmail.com	25/10/2017	Email		
Ginninderra Aboriginal Corporation	Steven Johnson	Ginninderra.corp@gmail.com	25/10/2017	Mail		
Didge Ngunawal Clan	Paul Boyd	didgengunawalclan@yahoo.com.au	25/10/2017	Mail		
Garrara Aboriginal Corporation	Raymond Ingrey	raymond@barlyu.org.au	25/10/2017	Email		
Murramarang	Roxanne Smith	murramarangchts@gmail.com	25/10/2017	Email		
Wingikara Cultural Heritage Technical Services	Wandai Kirkbright	wingikara@mirramajah.com	25/10/2017	Email		
Murrumbul Cultural Heritage Technical Services	Levi McKenzie-Kirkbright	murrumbul@mirramajah.com	25/10/2017	Email		
Dharg	Andrew Bond	dharugchts@gmail.com	25/10/2017	Email		
Thauaira	Shane Carriage	thauairachts@gmail.com	25/10/2017	Email		

Wingikara Cultural Heritage Technical Services	Hayley Bell	wingikarachts	25/10/2017	Email	
Cubbitch Barta Native Title Claimants Aboriginal Corp	Glenda Chalker	kgchalker@bigpond.com	25/10/2017	Mail	
Black Cockatoos Aboriginal Corporation	Aunty Janny Ely	janny.ely@hotmail.com	25/10/2017	Email	Wollondilly Shire Council contact
Gawaian Bodkin-Andrews	Gawaian Bodkin-Andrews	gawaian.bodkin-andrews@uts.edu.au	25/10/2017	Email	Wollondilly Shire Council contact
Aunty Fran Bodkin	Aunty Fran Bodkin	dharawal@tpg.com.au	25/10/2017	Email	Wollondilly Shire Council contact
Koolkuna Elders	Aunty Karen Adams	PO Box 132 Tahmoor NSW 2573	25/10/2017	Mail	Wollondilly Shire Council contact
D'harawal Mens Aboriginal Corporation	Elwyn Brown	187 Riverside Drive, Airds NSW 2560	25/10/2017	Mail	
Registered Organisations/Individuals	Contact Person	Email Address	Date	Method	Notes
Kamilaroi- Yankuntjatjara Working Group	Phil Khan	philipkhan.acn@live.com.au	2/11/2017	phone	
D'harawal Traditional Descendents' and Knowledgeholders Circle	Gawaian Bodkin-Andrews	gawaian.bodkin-andrews@uts.edu.au	7/11/2017	email	joint submission with 5 elders
Didge Ngunawal Clan	Paul Boyd	didgengunawalclan@yahoo.com.au	26/10/2017	email	
Koolkuna Elders	Aunty Karen Adams	auntie.fran80@gmail.com	7/11/2017	email	
Tharawal LALC	Rebecca Jarvis	informationofficer@tharawal.com.au	9/11/2017	email	
Biamanga		biamangachts@gmail.com	8/11/2017	email	
Goobah	Basil Smith	goobahchts@gmail.com	8/11/2017	email	
Murramarang		murramarangchts@gmail.com	8/11/2017	email	
Cullendulla		culldendullachts@gmail.com	8/11/2017	email	
Cubbitch Barta	Glenda Chalker	kgchalker@bigpond.com	8/11/2017	email	
STAGE 2 & 3					
ACHA Methodology (/Test Excavation Methodology)	Minimum 28 days to respond	(20/11/2017) - (18/12/2017)	Tender (20/11/17 - 4/12/17)		
Contacted Organisation/ Individuals	Contacted by Organisation/ Individual	Subject	Date	Method	Notes
All RAPs	AMAC/ Yolanda Pavincich	ACHA Research Design and Testing Methodology dispatch	20/11/2017	Email	Hard copy send to Glenda Chalker and Phil Khan
Consultation/AMAC	Lilly Carroll/ DNC	Agree to ACHA research design and testing methodology	20/11/2017	Email	
Test Excavation					
(22/01/2017) - (25/01/2018)					
Contacted Organisation/ Individuals	Contacted by Organisation/ Individual	Subject	Date	Method	Notes
All RAPs	AMAC / Consultation	Test Ex Availability	9/01/2018	Email	
AMAC/ Yolanda Pavincich	Phil Khan/ KYWG	Test Ex Availability	9/01/2018	Email	Has someone available will send through declaration

Paul Body/ DNC	AMAC/ Yolanda Pavincich	Test Ex Availability	9/01/2018	Phone	Has someone available will send through declaration
TLALC/ Rebecca Javis	AMAC/ Yolanda Pavincich	Test Ex Availability	9/01/2018	Phone	Will respond 10/1/18
Goobah/ Basil Goobah	AMAC/ Yolanda Pavincich	Test Ex Availability	9/01/2018	Phone	Has someone available will send through declaration
DTCKC/ Gawaian Bodkin	AMAC/ Yolanda Pavincich	Test Ex Availability	9/01/2018	Phone	Did not answer. Called back will confirm on 11/1/18

STAGE 4

ACHA Report Minimum 28 days to respond (03/05/2017) - (05/06/2018)

Contacted Organisation/ Individuals	Contacted by Organisation/ Individual	Subject	Date	Method	Notes
All RAPs	AMAC/ Consultation	ACHA and test ex report	6/02/2018	Email	attached reports. Hardcopy sent to Glenda Chalker/ Cubbitch Barta
AMAC/ Yolanda Pavincich	Gawaian Bodkin-Andrews/ DTKAKC	ACHA response	31/01/2018	Email	attached letter of response
AMAC/ Yolanda Pavincich	Phil Khan/ KYWG	ACHA response	5/03/2018	Email	
All RAPs	AMAC/ Consultation	ACHA review reminder email	5/03/2018	Email	
AMAC/ Yolanda Pavincich	Paul Boyd/ DNC	ACHA Response	5/03/2018	Email	agrees to recommendations
AMAC/ Yolanda Pavincich	Gawaian Bodkin-Andrews/ DTKAKC	ACHA Response	7/03/2018	Email	update information

To be completed upon receipt of RAP comments

3.2 SUMMARY OF TEST EXCAVATION

Test excavation was undertaken over four days 22/01/18 – 25/01/18. The programme was conducted under the Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales and consisted of the excavation of 14 test trenches (50cm x 50cm).

The soil profile was found to be consistent throughout the study area. It is clear and observable that the A1 horizon was found to be absent in majority of the study area, however an A2 horizon was evident but was found to be reworked. The topsoil across the study area was found to be redeposited and heavily disturbed, containing roadbase and other inclusions.

The soils observed through testing are consistent with the Blacktown soil landscape (bt), in which a brown -reddish loamy clay was present overlaying a mottled clay B horizon. The soils were found to be shallow with an average depth of 25cm.

No Aboriginal objects and/or deposits or features of cultural significance were identified during the programme of test excavation. Therefore, no further investigation is warranted, and works may proceed with caution.

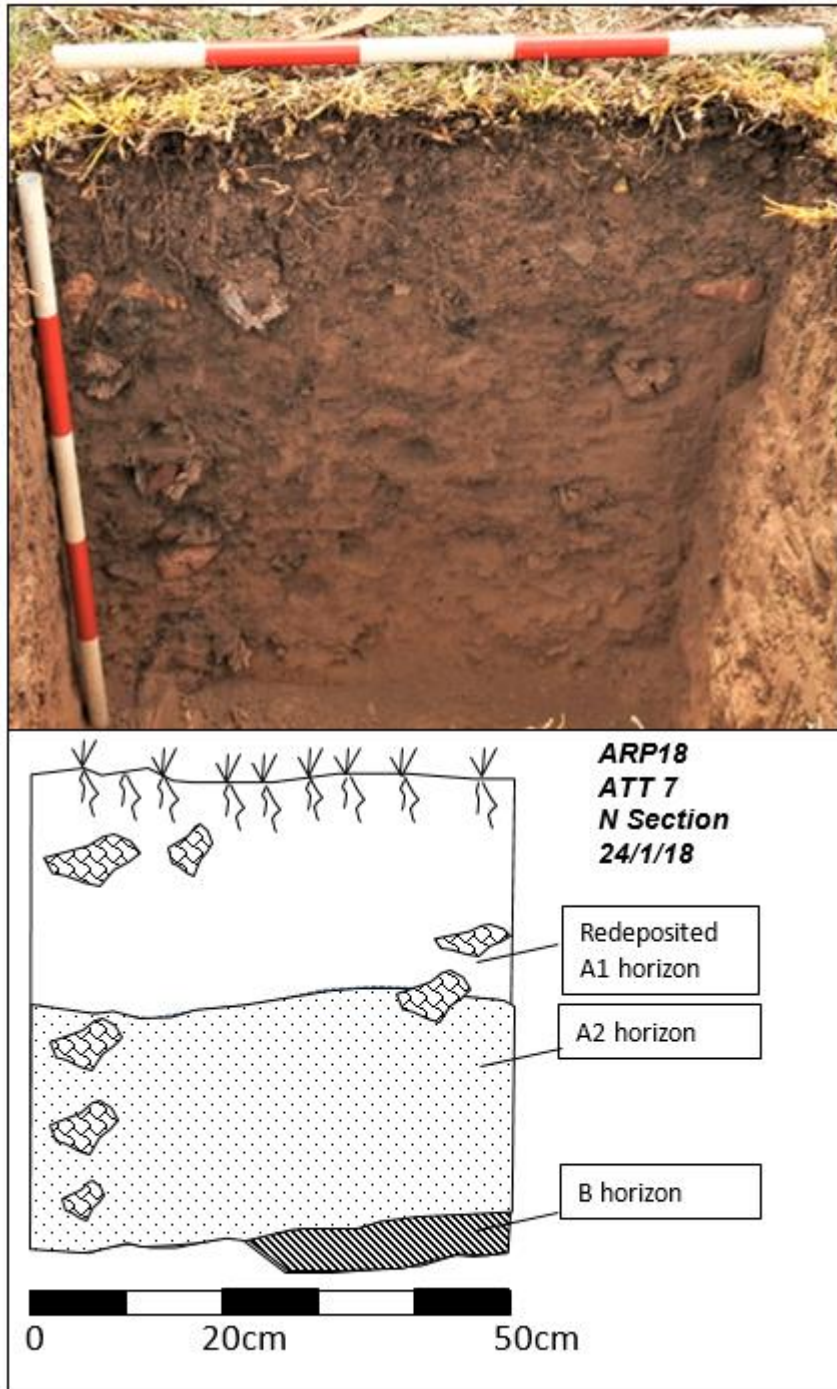
3.3 STRATIGRAPHIC ANALYSIS

This section of the report is a summary of the soil profiles encountered. It aims to identify and ascertain the stratigraphic integrity of the site.

The soil landscape for the study area consists of the Blacktown soil profile (bt). The geology of the study area is consistent with the Cumberland lowlands. The soil was found to be shallow on average 25cm with a maximum excavation depth of 50cm. The A horizon is found to be absent and instead a redeposited top soil was present containing inclusions such as roadbase. This is found to overlay in areas an A2 horizon. The A2 horizon shows evidence of disturbance and is found to be reworked in areas, containing large stone inclusions. The level of disturbance and inclusions indicates the deposits are not intact and have been subject to activities which have reworked any potential intact soils.

Stratigraphy observed;

- Redeposited A1 horizon – brownish clay loam with roadbase inclusions (15cm) overlaying;
- A2 horizon (bt2) – hardsetting brown/ reddish brown clay loam contained large stone inclusions (10cm) overlaying;
- B horizon (bt3) – brown medium mottled red, grey clay.



3.4 REGISTERED SITES

There are no registered sites within the study area that the author of this report is aware of. Test excavation resulted in no Aboriginal archaeological and cultural objects and/or deposits being located.

4.0 PROPOSED ACTIVITY

The proposed activity is a state significant development (SSD) # 8640 of the redevelopment of Picton High School (Figure 4.1-4.6). The proposed build consists of 3 floors of education spaces (Ground floor, lower floor and first floor). The tiered building design utilises the stepped terrain of the site for accessibility. The highest point is RL 22.47 of the roof, while the lowest point of the development is RL 21.35, making the build approximately 11.2m. The topography is raised towards the west and declines towards the east in a terraced effect, therefore the ground level of the build towards the west is 3.5m higher than the base of the lower ground level at the eastern end. (Figure 4.6)

External facilities have either been amended or added such as the proposed new service delivery access road along the south-eastern boundary, as well as carparking facilities along the western, northern and southern perimeter. Significant landscaping has been proposed including terraced grass spaces at the northern end to align with the tiered nature of the building design and topography.

The proposed development will impact and harm any objects and/or deposits of Aboriginal and/or archaeological significance. Test excavation has been proposed under the Code of Practice (DECCW 2010), to assess the level of disturbance of the site and the potential harm that may be the result of the proposed activity. The results of said excavation will assist in minimising harm to Aboriginal objects and/or places, if present.

No formal areas of exclusion have been identified in the current plans. Full development plans are given in Appendix Three.

The current stamped plans (Appendix Three) are at present undergoing minor revision and final stamped plans will be included in the final ACHMP.

4.1 POTENTIAL HARM TO ABORIGINAL OBJECTS AND CULTURAL HERITAGE

No Aboriginal objects and/or features of cultural and archaeological significance were located during the programme of test excavation. The soil was found to be significantly disturbed and therefore there is a low- nil possibility of their being artefacts present and works may proceed with caution.

4.2 ASSESSING HARM

No Aboriginal objects and/or features of cultural and archaeological significance were located during the programme of test excavation. The soil was found to be significantly disturbed and therefore there is a low- nil possibility of their being artefacts present and works may proceed with caution.

4.3 INTERPRETATION AND ACTION OF IMPACTS

Test excavation did not result in the location of any Aboriginal objects and/or deposits and as such the development will not be impacting on any Aboriginal objects and/or deposits, therefore an interpretation and action of impacts programme is not required.



 **NSW GOVERNMENT** | **Education** |  **Billard Leece Partnership**

CLIENT: DEPARTMENT OF EDUCATION | DRAWING NUMBER: AA02-0001 | PROJECT TITLE: PICTON HIGH SCHOOL REDEVELOPMENT
DRAWING TITLE: SITE CONTEXT PLAN - DEMOLITION | SCALE: 1:1000 @ A3 | PROJECT NUMBER: 17003
DATE: 20/02/2018

0 10 20 30 40 50

Figure 4.1: Demolition Plan
Billard Leece Partnership Pty Ltd (2018) Drawing No. AA02-0001

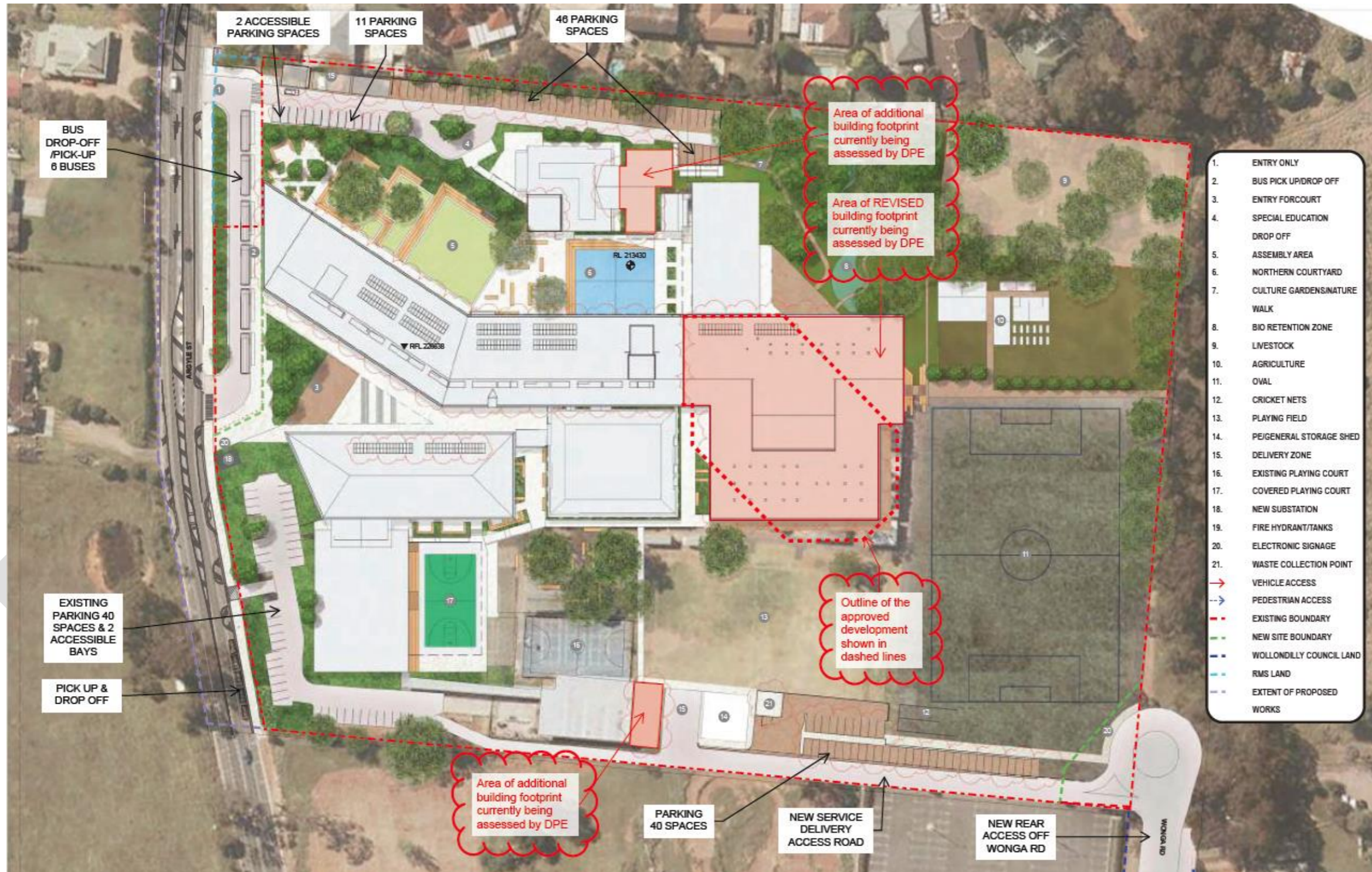


Figure 4.2 Proposed Development Buildings
 Billard Leece Partnership Pty Ltd (2018) Drawing No. AA03-0002



Figure 4.3 Site Context Plan (subject to minor amendments)
Billard Leece Partnership Pty Ltd (2018) Drawing No. AA03-0002

5.0 SIGNIFICANCE ASSESSMENT

The processes of assessing significance for items of cultural heritage value are set out in *The Australian ICOMOS Charter for the Conservation of Places of Cultural Significance: the Burra Charter* (amended 1999) formulated in 1979 and based largely on the Venice Charter of International Heritage established in 1966.

Archaeological sites may be significant according to four criteria, including scientific or archaeological significance, cultural significance to Aboriginal people, representative significance which is the degree to which a site is representative of archaeological and/or cultural type, and value as an educational resource. In New South Wales the nature of significance relates to the scientific, cultural, representative or educational criteria and sites are also assessed on whether they exhibit historic or cultural connections.

The criteria for assessing significance values are set out below;

- a) An item is important in the course, or pattern, of NSW's cultural or natural history (or the cultural or natural history of the local area).
- b) An item has strong or special association with the life or works of a person, or groups of persons, of importance in the cultural or natural history of NS (or the cultural or natural history of the local area).
- c) An item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area).
- d) An item has strong or special association with a particular community or cultural group in NSW (or the local area) for social, cultural or spiritual reasons.
- e) natural history of the local area

5.1 ARCHAEOLOGICAL SIGNIFICANCE

5.1.1 Educational Significance

The educational value of any given location will depend on the importance of any archaeological material located, on its rarity, quality and the contribution this material can have on any educational process (Australia ICOMOS, 1999 p. 11).

No archaeological and/or Aboriginal cultural material was located as a result of the programme of test excavation. Therefore, no educational significance can be assigned to the study area

5.1.2 Scientific Significance

The scientific value of any given location will depend on the importance of the data that can be obtained from any archaeological material located, on its rarity, quality and on the degree to which this may contribute further substantial information to a scientific research process. (Australia ICOMOS, 1999 p.11).

No archaeological and/or Aboriginal cultural material was located as a result of the programme of test excavation. Therefore, no scientific significance can be assigned to the study area.

5.1.3 Representative Significance

The representative value of any given location will depend on rarity and quality of any archaeological material located and on the degree to which this

representativeness may contribute further substantial information to an educational or scientific research process. (Australia ICOMOS, 1999 p.11).

No archaeological and/or Aboriginal cultural material was located as a result of the programme of test excavation. Therefore, no representative significance can be assigned to the study area.

5.2 SOCIAL AND CULTURAL SIGNIFICANCE

As defined in the 'Burra Charter' (ICOMOS, 1999) cultural significance is broken into three parts: aesthetic, historic and scientific value for past, present or future generations. Cultural significance is a concept which assists in estimating the value of any given place. Places that are likely to be of significance are those which can contain information which may assist with the understanding of the past or enrich the present, and which will be of value to future generations. The meaning of these terms in the context of cultural significance is outlined below. It should be noted that they are not mutually exclusive, (Australia ICOMOS, 1999 p.12).

5.2.1 Historic Significance

A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment. (Australia ICOMOS, 1999 p.11).

No historical significance has yet been assigned to the study area by any participating registered Aboriginal parties.

5.2.2 Scientific Significance

The scientific value of any given location will depend on the importance of the data that can be obtained from any archaeological material located, on its rarity, quality and on the degree to which this may contribute further substantial information to a scientific research process. (Australia ICOMOS, 1999 p.11).

No scientific significance has yet been assigned to the study area by any participating registered Aboriginal parties.

5.2.3 Aesthetic Significance

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture and material of the fabric; the smells and sounds associated with the place and its use. (Australia ICOMOS, 1999 p.11).

No aesthetic significance has yet been assigned to the study area by any participating registered Aboriginal parties.

5.3 STAKEHOLDER SUBMISSIONS

To be inserted upon receipt of submissions...

6.0 PLAN OF ACTION

RECOMMENDATIONS

The recommendations have been formulated after consultation with RAPs, the proponent and the OEH;

- Consideration should be given to the recommendations of D'harawal Traditional Descendants' and Knowledgeholders' Circle in regard to the native vegetation of the area, including the request for a detailed botanical survey, protection of existing native flora where possible, planting of healthy, native (to the region) specimens, including Turpentine, Forest Red Gum, Stringy Bark and Ironbark species and that consultation continue with RAPs regarding the landscaping of the development as part of this Aboriginal Cultural Heritage Management Plan.
- Before any ground disturbance takes place all development staff, contractors and workers should be briefed prior to works commencing on site, as to the status of the area and their responsibilities in ensuring preservation of the said area. They should also be informed of their responsibilities regarding any Indigenous archaeological deposits and/or objects that may be located during the following development;

If any Aboriginal archaeological deposits and/or objects are located during the development, then the following should take place;

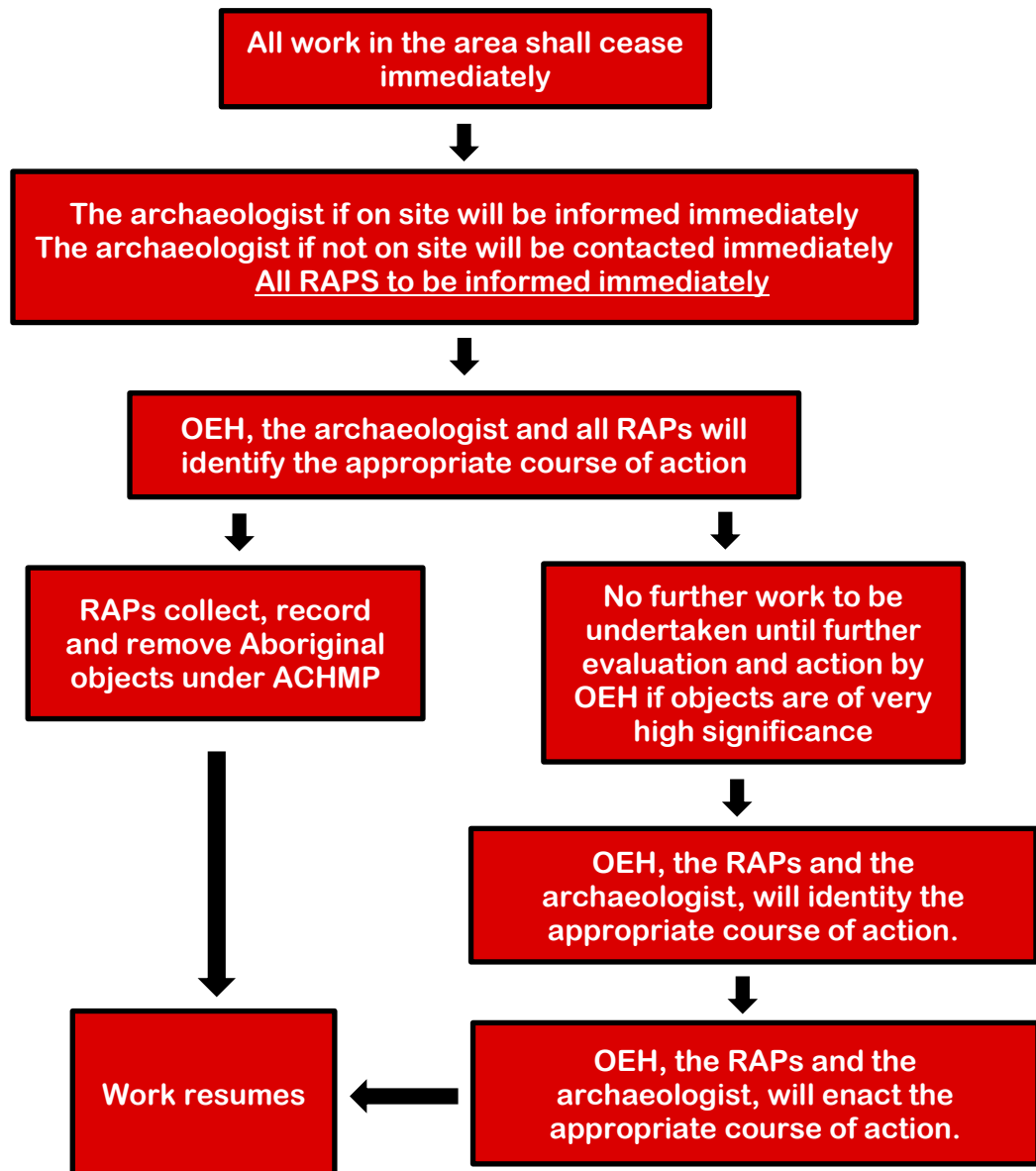
- All work is to cease in the immediate vicinity of the deposits and/or objects
- The area is to be demarcated
- OEH, a qualified archaeologist and the participating RAPs are to be notified.

Should any human remains be located during the following development;

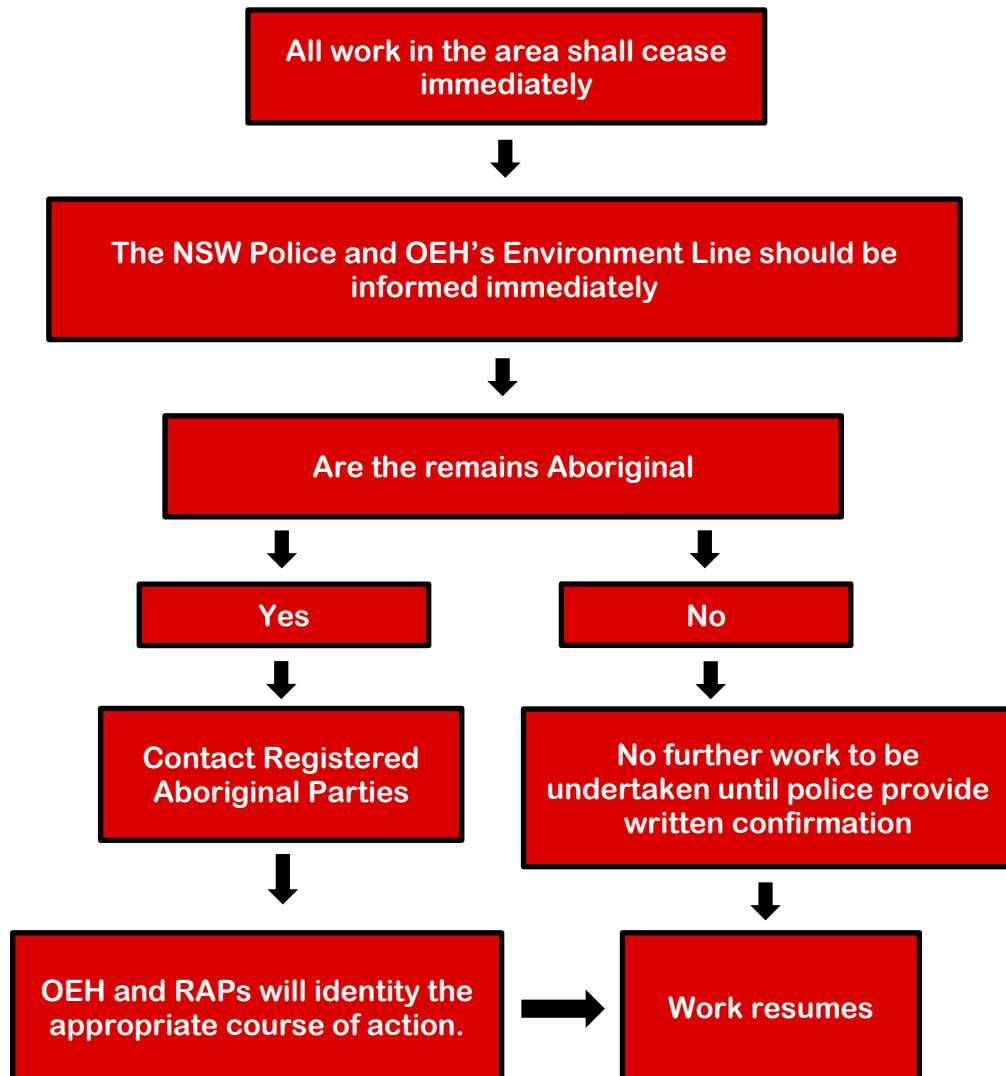
- All excavation in the immediate vicinity of any objects of deposits shall cease immediately;
- The NSW police and OEH's Enviroline be informed as soon as possible:
- Once it has been established that the human remains are Aboriginal ancestral remains, OEH and the relevant Registered Aboriginal Parties will identify the appropriate course of action.

The following are flow charts for the course of action for the listed potential archaeological constraints that all signatories to the ACHMP, have read, understood and agreed to.

6.1 FLOW CHART FOR THE DISCOVERY OF UNEXPECTED ABORIGINAL ARCHAEOLOGICAL MATERIAL



6.2 FLOW CHART FOR THE PROCEDURE FOR THE DISCOVERY OF HUMAN REMAINS



6.3 CONTACT DETAILS

The contact details for the following archaeologist, NSW Police, OEH and Registered Aboriginal Parties are as follows:

Organisation	Contact	Contact Details
NSW Environment Line		131 555
NSW Camden Local Area Command		LAC Office: Cnr Camden Valley Way & Wilson Crescent Narellan NSW 2567 Ph: (02) 4632 4499 Fax: (02) 4632 4411
Archaeological Management & Consulting Group Pty Ltd	Mr. Benjamin Streat or Mr. Martin Carney	122c-d Percival Road Stanmore NSW 2048 Ph:(02) 9568 6093 Fax:(02) 9568 6093 Mob: 0405 455 869 Mob: 0411 727 395 benjaminstreat@archaeological.com.au
Office of Environment & Heritage NSW Department of Planning and Environment	Archaeologist – Head Office	PO Box 5436 Wollongong NSW 2520 Ph: (02) 4224 4188 illawarra@environment.nsw.gov.au
Tharawal Local Aboriginal Land Council (TLALC)	Rebecca Jarvis	informatinofficer@tharawal.com.au
Kamilaroi – Yankuntjatjara Working Group	Phil Khan	Phillipkhan.acn@live.com.au
D’harawal Traditional Descendents’ and Knowledgeholders Circle	Gawaian Bodkin – Andrews/ Ross Evans	Gawaian.bodkin-andrews@uts.edu.au
Didge Ngunawal Clan	Paul Boyd	didgengunawalclan@yahoo.com.au
Koolkuna Elders	Aunty Karen Adams	Auntie.fran80@gmail.com
Cubbitch Barta	Glenda Chalker	kgchalker@bigpond.com
Biamanga		biamangachts@gmail.com
Goobah	Basil Smith	goobahchts@gmail.com
Cullendulla		cullendullachts@gmail.com
Murramarang		murramarangchts@gmail.com

7.0 REPORTING

All ACHMP works carried out during the Picton School Project will be documented to a standard comparable to that required by the Code of Practice for Archaeological Investigation of Aboriginal Objects 2010 and in consultation with Registered Aboriginal Parties.

8.0 REVIEW PROCEDURE

Once this ACHMP has been agreed to by all parties and all parties the ACHMP. The document is to be reviewed and endorsed by the DPE. No alteration of procedures shall take place without the involvement of all parties. All parties and their organisations shall be informed in writing of the proposed review and all parties and their respective organisations must agree to any changes and be a signatory to a review document where any changes shall be detailed.

APPENDICES

APPENDIX ONE:SSD #8640

APPENDIX TWO: BRIEFING DOCUMENT FOR STAFF



AMAC Group &
Streat Archaeological Services
122c Percival Road,
Stanmore, 2048
(02) 9568 6093

Aboriginal Cultural Heritage: Contractor Briefing Document

Picton High School Redevelopment
480 Argyle Road, Picton NSW

INTRODUCTION

This document outlines the guidelines and legislation surrounding Aboriginal Heritage in New South Wales under the National Parks and Wildlife Act 1974, as well as the responsibilities of development staff, contractors and workers in ensuring the preservation and notification of any Aboriginal Objects discovered during the Picton High School Redevelopment.

The proposed development will impact the ground surface and may disturb Aboriginal objects and areas of cultural significance. In response to the recommendations outlined in the Aboriginal Cultural Heritage Assessment (AMAC 2018) a programme of test excavation was undertaken which resulted in no Aboriginal archaeological material being uncovered and disturbed soils were observed within the study area. Therefore, there is a low- nil possibility of their being artefacts present within intact soils. Archaeological investigations have found that artefacts can be located within disturbed deposits and as such these procedures are set in place for the discovery of unexpected objects or deposits.

As the project is a State Significant Development (SSD# 8640) all conditions and procedures are endorsed and enacted under the Aboriginal Cultural Heritage Management Plan, in consultation with Office of Environment and Heritage and Registered Aboriginal Parties. A site copy of this document will be available.

LEGISLATION

The NSW National Parks and Wildlife Act 1974 (as amended) defines Aboriginal objects and provides protection to any and all material remains which may be evidence of the Aboriginal occupation of lands contained within the state of New South Wales. The relevant sections of the Act are sections 84, 86, 87 and 90.

It is an offence to 'harm' or desecrate an Aboriginal object or places under Part 6, Section 86 of the NPW Act.

Harm means any act or omission that;

- Destroys, defaces or damages the object;
- Moves the object from the land on which it had been situated, or;
- Causes or permits the object to be harmed.

FINES

Part 6, Division 1, Section 86: Harming or desecrating Aboriginal objects and Aboriginal places

(1) A person must not harm or desecrate an object that the person knows is an Aboriginal object.

Maximum penalty:

- (a) In the case of an individual – 2,500 penalty units or imprisonment for 1 year, or both, or (in circumstances of aggravation) 5,000 penalty units or imprisonment for 2 years, or both, or
- (b) In the case of a corporation – 10,000 penalty units.

(2) A person must not harm an Aboriginal object.

Maximum penalty:

- (a) In the case of an individual – 500 penalty units or (in circumstances of aggravation) 1,000 penalty units, or
- (b) In the case of a corporation – 2,000 penalty units.

ABORIGINAL OBJECTS

An Aboriginal object, formerly known as a relic is defined by the NSW government (NPW 1974) as:

“any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains”

ABORIGINAL SITE TYPES

- Aboriginal Culturally Modified Trees (Scarred/Carved)
- Shell Middens
- Rock Pigment and Engravings
- Stone Artefacts
- Grinding Grooves
- Shelters with Deposits
- Hearths
- Stone Arrangements
- Quarries
- Earth Mound
- Ceremonial/ Social Sites



Stone Arrangement



Hearth Site



Grinding Grooves



Stone Artefacts

SOIL PROFILE

The study area is within the Blacktown Soil Landscape (bt), which is located over much of the Cumberland Plains. It consists of alluvium sand and silts derived from the erosion of the Hawkesbury and Nepean sandstone and shales of the Wianamatta and Bringelly groups.

Aboriginal objects are usually located within the A horizon (bt1)

The standard soil profile for the area:

- up to 30cm of greyish brown loam (bt1),
- 10 – 20cm of brown clay loam (bt2),
- up to 100cm of brown mottled light clay (bt3),

This profile varies slightly for drainage depressions and areas of poor drainage:

- up to 20cm of greyish brown loam (bt1)
- brown mottled light clay (bt3)



Typical Blacktown soil profile

The soil profile within the development footprint is deemed disturbed as observed through test excavations conducted by AMAC on site.

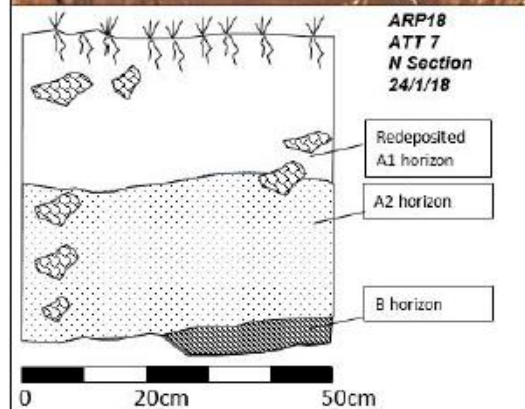
Soil profile encountered:

The A horizon is found to be absent and instead a redeposited top soil was present containing inclusions such as roadbase.

This deposit was found to overlay in areas an A2 horizon. The A2 horizon shows evidence of disturbance and is found to be reworked, containing large stone inclusions.

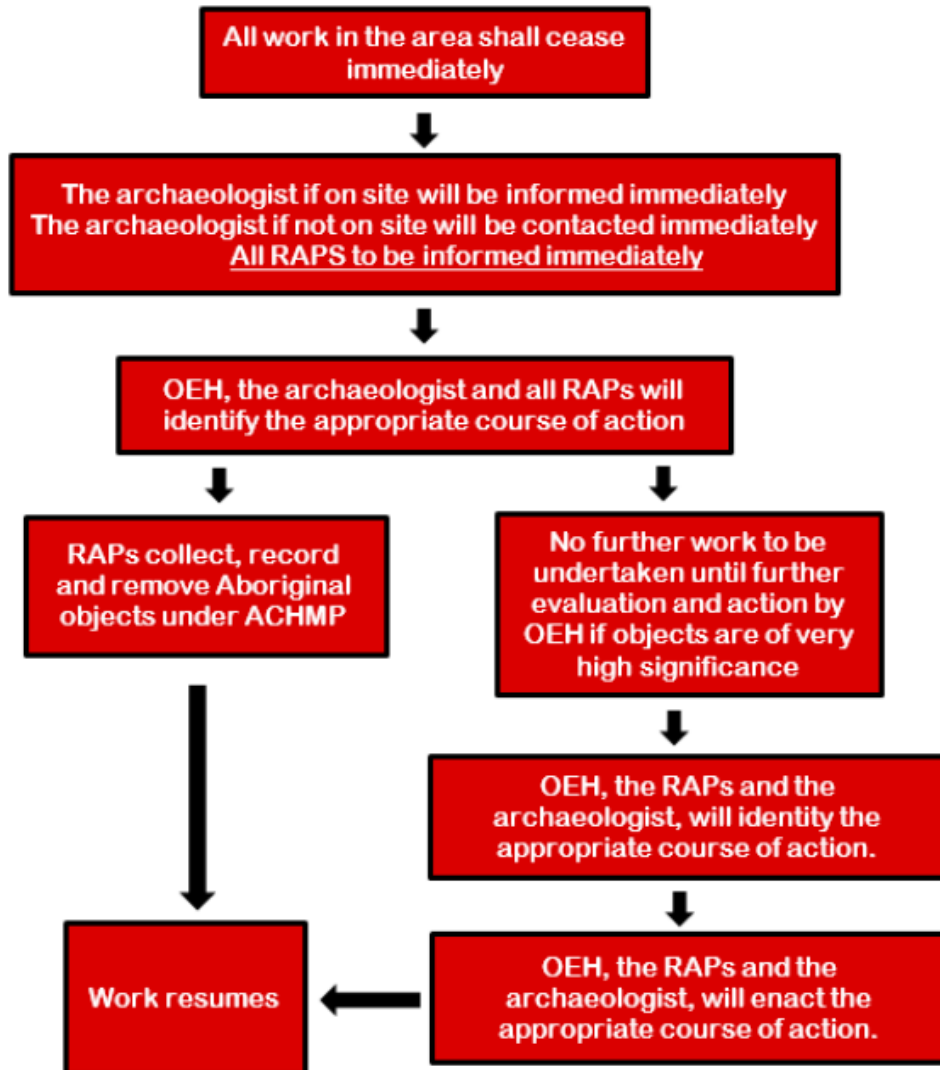
The level of disturbance and inclusions indicates the deposits are not intact and have been subject to activities which have reworked any potential intact soils.

- Redeposited A1 horizon – brownish clay loam with roadbase inclusions (15cm) overlaying;
- A2 horizon (bt2) – hardsetting brown/reddish brown clay loam contained large stone inclusions (10cm) overlaying;
- B horizon (bt3) – brown medium mottled red, grey clay.



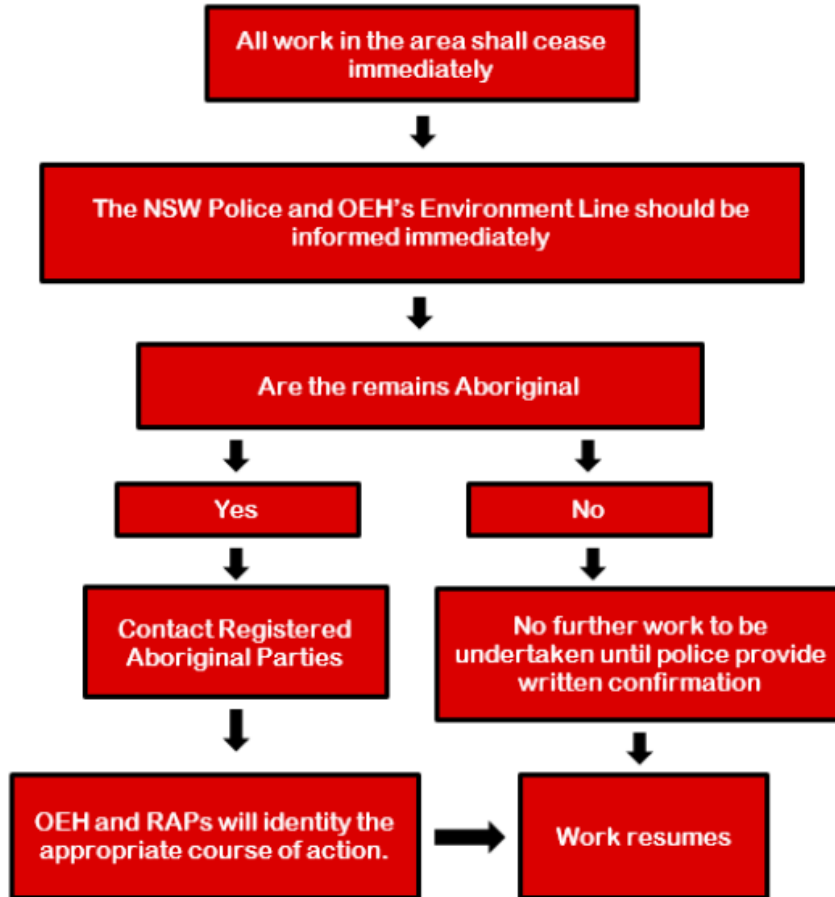
DISCOVERY OF ABORIGINAL OBJECTS

During the development if any Aboriginal objects and/or deposits are discovered the following procedure is to be enacted as outlined in the *Aboriginal Cultural Heritage Management Plan* (AMAC 2018).



DISCOVERY OF HUMAN REMAINS

In the unlikely event of human skeletal remains being uncovered the following procedure is to take place as outlined in the *Aboriginal Cultural Heritage Management Plan*.



CONTACT DETAILS

The contact details for the archaeologist, NSW police, Office of Environment and Heritage and the Registered Aboriginal Parties are as follows;

Organisation	Contact	Contact Details
NSW Environment Line		131 555
NSW Camden Local Area Command		LAC Office: Cnr Camden Valley Way & Wilson Crescent Narellan NSW 2567 Ph: (02) 4632 4499 Fax: (02) 4632 4411
Archaeological Management & Consulting Group	Mr. Benjamin Streat or Mr. Martin Carney	122c-d Percival Road Stanmore NSW 2048 Ph:(02) 9568 6093 Fax:(02) 9568 6093 Mob: 0405 455 869 Mob: 0411 727 395 benjaminstreat@archaeological.com.au
Office of Environment & Heritage NSW Department of Planning and Environment	Archaeologist – Head Office	PO Box 5436 Wollongong NSW 2520 Ph: (02) 4224 4188 illawarra@environment.nsw.gov.au
Tharawal Local Aboriginal Land Council (TLALC)	Rebecca Jarvis	Informatinofficer@tharawal.com.au
Kamilaroi – Yankuntjatjara Working Group	Phil Khan	Phillipkhan.acn@live.com.au
D'harawal Traditional Descendents' and Knowledgeholders Circle	Gawaian Bodkin – Andrews/ Ross Evans	Gawaian.bodkin-andrews@uts.edu.au
Didge Ngunawal Clan	Paul Boyd	didgengunawalclan@yahoo.com.au
Koolkuna Elders	Aunty Karen Adams	Auntie.fran80@gmail.com
Cubbitch Barta	Glenda Chalker	kgchalker@bigpond.com
Biamanga		biamangachts@gmail.com
Goobah	Basil Smith	goobahchts@gmail.com
Cullendulla		cullendullachts@gmail.com
Murramarang		murramarangchts@gmail.com

APPENDIX THREE: STAMPED DEVELOPMENT PLANS

AMAC Group & SAS

Billard Leece Partnership
201/50 Holt St.
Surry Hills NSW 2010
(02) 8096 4066

AMAC Group &
Streat Archaeological Services
122c Percival Road,
Stanmore, 2048
(02) 9568 6093
consultation@archaeological.com.au
4th April 2019

Dear Mr Lim,

Re: Picton HS - REQUEST FOR A WRITTEN CONFIRMATION

As part of the initial stage, **AMAC has no archaeological or cultural objections** to the commencement of the following:

- Removal of asbestos and demolition of existing buildings with no earth excavation and ground disturbance works
- All subsequent stages of the invasive earthwork, can **only proceed** when the ACHMP report is in place.

Currently, the ACHMP is with the registered Aboriginal parties who, under the Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010 (DECCW 2010), referring to Part 6 Approvals under the NPW Act, must be given the opportunity to review and provide feedback to the proponent within a minimum of 28 days.

The closing date for the submissions of comments and feedback is 19th April 2019. Following this a copy of the ACHMP will be distributed to Billard Leece Partnerships.

If you have any questions please contact us and we will be happy to discuss.

Look forward to hearing from you.

Yours sincerely,



Benjamin Streat
Senior Archaeologist
(Aboriginal Heritage)



Archaeological Management & Consulting Group and Streat Archaeological Services Pty Ltd

122c Percival Road, Stanmore NSW 2048
(02) 9568 6093
consultation@archaeological.com.au

122c Percival Road,
Stanmore, 2048
10th March 2019

Mr David Gainsford
Executive Director
Priority Projects
Delegate of Minister for Planning
Department of Planning and Environment

**Re: SSD 8640 – Picton High School:
Archaeological Work Method Statement**

Dear Mr Gainsford,

Billard Leece Partnership and Taylor, on behalf of the Department of Education NSW, have commissioned AMAC Group to prepare an Archaeological Work Method Statement to form documentation in response to Condition C46 of endorsed SSD 8640. The Archaeological Work Method Statement will form the guiding document for the management of historical archaeology at the study site and will remain in place for the duration of the construction program.

AWMS Scope

An Archaeological Work Method Statement (AWMS) is produced by an archaeologist and endorsed by the NSW Heritage Division or relevant Delegate. An AWMS will synthesise historical research contained in said pre-existing documents, outline the impacts proposed by the development plans and provide an excavation methodology designed to mitigate potential archaeological heritage impacts incurred by the development.

This Archaeological Work Method Statement contains an excavation methodology that should be viewed in conjunction with the Baseline Archaeological Assessment produced by AMAC Group in August 2018. The baseline assessment includes detailed discussions of the archaeological potential, potential significance and legislative context of the study site. A copy of the baseline archaeological assessment (August 2018) is available for download from NSW Planning & Environmental portal as Attachment K.

Aboriginal cultural heritage and the discovery of objects of Aboriginal heritage are subject to and protected by the National Parks and Wildlife Act 1974, they are not assessed in this document. The discovery of objects of Aboriginal heritage should immediately be reported to the NSW Office of Environment and Heritage. An Aboriginal Heritage Management Sub-Plan also prepared by AMAC Group will be in place to comply with and manage any Aboriginal heritage issues arising from the development. For reference, The Aboriginal Cultural Heritage Report (March 2018) detailing test excavation results is available for download from NSW Planning & Environmental portal as Attachment O.

The heritage value of the standing structures on the study site is not assessed as part of this document.

AMAC

Archaeological

**Archaeological
Management &
Consulting
Group**

N.S.W.
Sydney – Inner West
122c-d Percival Rd
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(02) 95686093

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Blue Mountains
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Baulkham Hills 2153
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AEGIS HERITAGE T/A
ABN 59 126 155 020

The discovery of unknown or unexpected remains may require further consultation with the NSW Heritage Division or relevant Delegate. This process will be compliant with the New South Wales Heritage Act 1977, National Parks and Wildlife Act 1974 and Environmental Planning and Assessment Act 1979.

Background

The proposed works are located at 480 Argyle Street, Picton NSW (Lot 2 in Land Titles Office Deposited Plan 520158). The location of the proposed works is hereafter referred to as the 'study site' (Figure 2 and Figure 3). The study site is not listed as a heritage item on the NSW State Heritage Register or Inventory, nor on the relevant Local Environment Plan for the region. However, a letter from the Heritage Council of New South Wales dated 8th June 2018 made the following comments:

The Heritage Division notes that Argyle Street, which is a boundary for the school, was the former Old Hume Highway alignment. The Hume Highway is an historic road alignment (also known as the Great South Road) and development in Picton region dates from the c.1820s, with the town established from the c.1840s. The site itself appears to be on the border of the town.¹

The letter requested a short historical assessment be made for the study site. The Baseline Archaeological Assessment prepared by AMAC Group in August 2018 forms that document.² The Archaeological Work Method Statement is a supplementary document to the Baseline Archaeological Assessment and the two documents should be read in conjunction.

The study site currently contains multiple educational buildings which cover the entire portion of the site excluding the north-east strip where a sporting field is located. Access to the carpark and bus station is via Argyle Street in the north west corner and the exit is approximately 60 metres south of the access. Fronting Argyle Street is a low metal fence with a concrete footpath. Parallel to the fence is a second higher fence that contains the educational buildings. A large rectangular sporting field occupies the north east area backing onto Wonga Road and a smaller square field is situated in the centre of the southern boundary. The allotment contains a large number of trees and vegetation across the street but more densely situated along the northern boundary.

Summary of Historical Development

The study site was part of an original grant given to Charles Luis Rumker in 1822. In 1844, Rumker released 1200 acres of his 2200-acre property to Reverend William Lumsdaine. Thomas Adris Hilder bought the property shortly after and subdivided the land containing the study sites in 1896. Lot 6 of the study site was transferred to Florence Maude Teale with Lot 5 and Lot 7 of the study site with Lot 8 was released to Ada Mary Bradbury. Both portions of the study site were used as grazing paddocks as they were transferred to subsequent owners that were all farmers (Figure 1). It was not until 1957 that Lots 6 and 7 were bought together by the Majesty Queen Elizabeth the second (i.e.- crown land).

¹ Letter from NSW Heritage Division to Ms Erin White, DA Co-ordinator of Division of Priority Projects Assessments regarding SSD 8640, dated 8th June 2018.

² A copy of the baseline assessment (August 2018) is available for download from NSW Planning & Environmental portal as Attachment K.

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Archaeological Potential of the site

In terms of archaeology, the baseline assessment identified the study site as having little to no known archaeological potential for any development phases prior to the current mid-20th century buildings forming the high school.³ There is unknown potential for archaeological remains relating to 19th century agricultural activities across the study site.

The study site fronts Argyle Street (former Great Southern Road/ Hume Highway) to which its first instance was formalised in the early 19th century. This portion of the site (hereon referred to as the works zone), forms the area of concern highlighted by June 2018 letter issued by the NSW Heritage Division.⁴ There is low archaeological potential for evidence of the original road alignment of the former Great Southern Road/ Hume Highway to survive beneath, or surrounding Argyle Street. This road was significantly modified during the 1920s when it was regraded. Archaeological materials forming evidence of the original roadway (Great Southern Road/ Hume Highway) may include unformalised sandstone blocks used as packing for the roadway (for example, McAdams method) or instances of earlier road surfaces may survive below the current asphalt roadway or surrounding grounds.

Based on the assessment, the potential for exposing known archaeological material is restricted to the western boundary of the study site where the site sits adjacent to Argyle Street, hereon referred to as the works zone. The approximate works zone area has been highlighted in both Figure 2 and Figure 3.

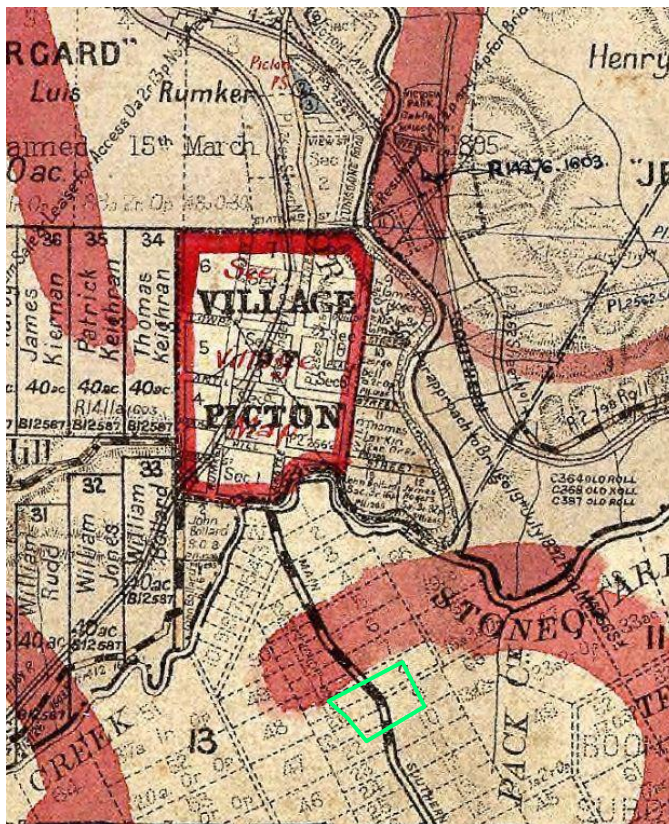


Figure 1 1919 Parish Map. Study site outlined in green. NSW Land and Property Information, Historical Land Records Viewer, A.O. Map No. 20297.

³ AMAC (August 2018), p. 42.

⁴ Letter from NSW Heritage Division to Ms Erin White, DA Co-ordinator of Division of Priority Projects Assessments regarding SSD 8640, dated 8th June 2018.

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Figure 2 Aerial photograph showing general study site location and its frontage to Argyle Street.
Study site approximately outlined in red. Works zone approximately outlined in blue.
NSW Land and Property Information, Six Maps Viewer, accessed 19th February 2019, <https://maps.six.nsw.gov.au/>

AMAC group



Figure 3 Map showing study site outlined in red. Study site approximately outlined in red. Works zone approximately outlined in blue. NSW Land and Property Information, Six Maps Viewer, accessed 19th February 2019, <https://maps.six.nsw.gov.au/>

Summary of Significance

There is low archaeological potential for remains including road base, sandstone blocks and foundation materials to have survived from the 19th century construction of the former Great Southern Road/ Hume Highway (now current Argyle Street). If this material is exposed during curb side or street works associated with the school development and found to be in an intact and interpretable state, these remains have the potential to be considered locally significant.

Proposed Impacts

The proposed development is for the construction of new educational buildings and general refurbishment to Picton High School. Significant landscaping has been proposed including terraced grass spaces at the northern end to align with the tiered nature of the building design and topography. External facilities have either been amended or added such as the proposed new service delivery access road along the south-eastern boundary, as well as carparking facilities along the western, northern and southern perimeter.

The proposed redevelopment of the school includes minor works within Argyle Street (Great Southern Road/former Hume Highway). Construction plans (Figure 4) indicate that

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physical works to Argyle Street include line markings and new sign posts which will not require any

excavation works. A temporary access driveway for staff parking will also be created off Argyle Street during the construction phase (Figure 5). Concept stormwater management plans which were created after the initial baseline assessment indicate that excavation will be required for a new stormwater drainage line and pits running north-south within the current school driveway and bus access road which runs off Argyle Street. The stormwater line will be located several metres away from the current Argyle Street alignment.

Statement of Archaeological Heritage Impact

Revised development plans and new construction drawings indicate that there will be minimal subsurface impacts to the western study site boundary and in the wider vicinity of Argyle Street (works zone). No planned excavation works to Argyle Street itself are known, the identified works being for line marking, sign posting and the creation of temporary driveway access.

For these reasons, archaeological inspection in the works zone during the construction phase is not considered necessary however all excavation works at the study site will be subject to the methodology presented in the Archaeological Work Method Statement below and includes guidelines for the management of unexpected finds.

The Archaeological Work Method Statement is to be in place for the duration of the construction programme. Though not anticipated to be exposed, an excavation methodology will be in place to cover archaeological recording and removal of locally significant remains of the former Great Southern Road/ Hume Highway by a qualified archaeologist and within the works zone.

Archaeological Work Method Statement

Introduction

The western boundary of the study site, referred to as the works zone, holds potential to retain archaeological evidence of the former Great South Road/ Hume Highway. Intact archaeological material relating to this former roadway is of potential local significance. The works proposed by the development on and around Argyle Street are unlikely to expose any evidence of the former road alignment, should it survive, however an archaeological inspection should be conducted by an experienced archaeologist if plans change and the excavation is required along Argyle Street.

As no harm to relics is anticipated within the works zone, and no other relics were identified across the study site, archaeological management of the study site will operate on a call-out basis for unexpected finds (see site-specific methodology below). If found, the evaluation of State significant material or relics outside of the initial study (i.e.- unexpected relics) would be the subject of consultation with the Heritage Division or the relevant Delegate and additional analysis, evaluation or endorsement as required by the finds. Any archaeological excavation, should it be required, will be carried out according to: current best practice⁵ and the terms of the methodology set out here.

Site Specific Methodology

1. Initial Briefing

A physical copy of the Archaeological Work Method Statement should be made available on site for all contractors to consult and familiarise themselves with the works zone and potential archaeological relics. For further context and background, the Archaeological Work Method Statement should be read in conjunction with the Baseline Archaeological Assessment by AMAC Group (August 2018).⁶

2. Call-out system for potential relics and unexpected finds

If archaeological material is encountered (for example, sandstone or brick footings, former road surfaces, evidence of structures, cesspits, wells) excavation is to cease in this location while AMAC Group is contacted. AMAC Group will attend site to inspect the potential relic. If the material is assessed as being a locally significant relic or feature and previously assessed, such as material associated with the former Great South Road/ Hume Highway, the relic will be archaeologically recorded and removed (if required) per the Archaeological Monitoring and General Excavation Methodology below.

Any unexpected relics of potential State significance or otherwise unassessed in previous documentation may require approval prior to its removal. If necessary, the archaeologist will notify and consult the Heritage Division or its relevant Delegate regarding the find. Notification and consultation involving the Heritage Division or its Delegate is detailed below in the Archaeological Monitoring and General Excavation Methodology.

⁵ NSW Department of Planning and Heritage Council of NSW (2006) *Historical Archaeology Code of Practice*

⁶ A copy of the baseline assessment (August 2018) is available for download from NSW Planning & Environmental portal as Attachment K.

3. Archaeological Monitoring and General Excavation Methodology

Archaeological monitoring involves a suitably qualified archaeologist supervising and co-ordinating with an experienced mechanical excavator operator. Monitoring proceeds by the

archaeologist overseeing the work of a mechanical excavator who would remove modern soils and fills according to the direction of the archaeologist.

When engaged in excavation monitored by the archaeologist, the machine must have a flat edged or mud bucket, rather than a toothed bucket, in order to maintain a clean excavated surface. In general, any machinery used will move backwards, working from a slab surface, in order not to damage any exposed archaeological relics. The soil will be removed in layers, with no more than one context, such as topsoil, being removed at one time. This will allow any relics to be identified and recorded, and preserved if necessary.

Archaeological monitoring will continue until one of the following points are encountered:

- The level of ground disturbance is understood by the archaeologist;
- Or the entire depth of the excavation required is reached;
- Or to the point at which a sterile, natural soil horizon, or bedrock, is identified.

The archaeologist must be on site to supervise all excavation with the possibility of revealing archaeological relics. The excavation will be carried out according to the direction of the archaeologist.

Discovery of Relics

Should any additional archaeological material be found during monitoring, excavation will cease while these are investigated. The nature of the investigation is dependent on the nature, extent and condition of the finds, the investigation is conducted in order to allow the archaeologist to determine an appropriate management procedure. A range of possible procedures is outlined below:

The archaeologist discovers archaeological material not deemed a relic i.e.: not of local or State significance:

- This material can be removed and, if deemed necessary by the archaeologist, recorded. Excavation for the proposed development may re-start at the discretion of the archaeologist.

The archaeologist discovers locally significant relics predicted and assessed by the Baseline Archaeological Assessment:

- This material can be excavated and recorded. Excavation can occur by hand, or where possible by machine, to the extent that they will be destroyed by the proposed development. Excavation for the proposed development may re-start at the discretion of the archaeologist and subject to conditions of the permit.

The archaeologist discovers relics not predicted or assessed by the Baseline Archaeological Assessment, human remains, or potentially State significant relics:

- The archaeologist must investigate – by physical exposure of the potential relic and/or desktop research – in order to ascertain the nature, extent, condition and significance of the relic (local or State). The Heritage Division or relevant Delegate will be notified of these findings and their advice will be sought as to how to proceed, further assessment or documentation may be required at this point in order to obtain approval. Re-start of

AMAC *group*

excavation for the proposed development occurs at the discretion of the Heritage Division or relevant Delegate.

Should any archaeological relics be uncovered, but not removed, in the process of excavation, these will be recorded. They should be covered with a semi-permeable

membrane, such as bidum, before construction. Should the proposed development require any plantings in the areas of retained archaeological remains, these should be restricted to small plants and not include trees, as significant root growth may disturb the retained remains. This is considered unlikely for this site.

Those relics in the form of internally coherent discrete deposition or integral form will be archaeologically excavated and recorded. Samples will be taken of any earlier topsoils, or soils within features such as pits or wells, and of occupation deposits, particularly those from the 19th century phase of the site. Samples will also be taken of any building materials, such as bricks and mortar found. Any occupation deposits and fills of features such as pits will be sieved, and all artefacts will be retained, with the exception of building materials which will be sampled. A sample square will be sieved for any yard deposit which covers a large area. This is considered unlikely for this site.

Archaeological Recording

Any archaeological relics found and excavated will be recorded in three ways. A written description of each feature and context will be made using printed context sheets. A Harris Matrix will be formulated in order to record the relationship of all contexts found. A scaled plan or photogrammetric model will be made of the site and of each feature found, and levels will be taken as part of this process. The site and features will also be recorded photographically, according to current Heritage Division guidelines. Recording of the site will be carried out according to Heritage Division guidelines.⁷

Any artefacts from the excavation will be cleaned and catalogued, and placed in labelled bags according to their catalogue number. The artefacts, in boxes, will be returned to the property owner for safe-keeping.

Archaeological Reporting

Should any archaeological relics be exposed and recorded at the study site, a final archaeological report is required to be written detailing all finds.

The scope and extent of reporting is linked directly to the nature, extent and complexity of site finds and a ratio of 1:1 for site time should be expected as a starting point to complete reporting in terms of Heritage Division Guidelines, the methodology proposed and any conditions. The time frame will move up or down relative to the extant and complexity of material.

At the cessation of site works, the archaeologist will notify the Heritage Division that works were completed according to the Archaeological Work Method Statement Methodology and conditions of the State Significant Development. The final report will include an analysis of the results of the work and a comparison with the results of similar sites in the local area, where possible. Additional research may also be conducted in response to the finds of excavation. The final report will be submitted to the NSW Heritage Division or its relevant delegate, the Heritage Division reserves the right to respond to the report.

⁷ NSW Heritage Office (1998) and (2001, revised 2006).

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Please do not hesitate to contact me if you require further information.

Regards,



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Martin Carney
Director
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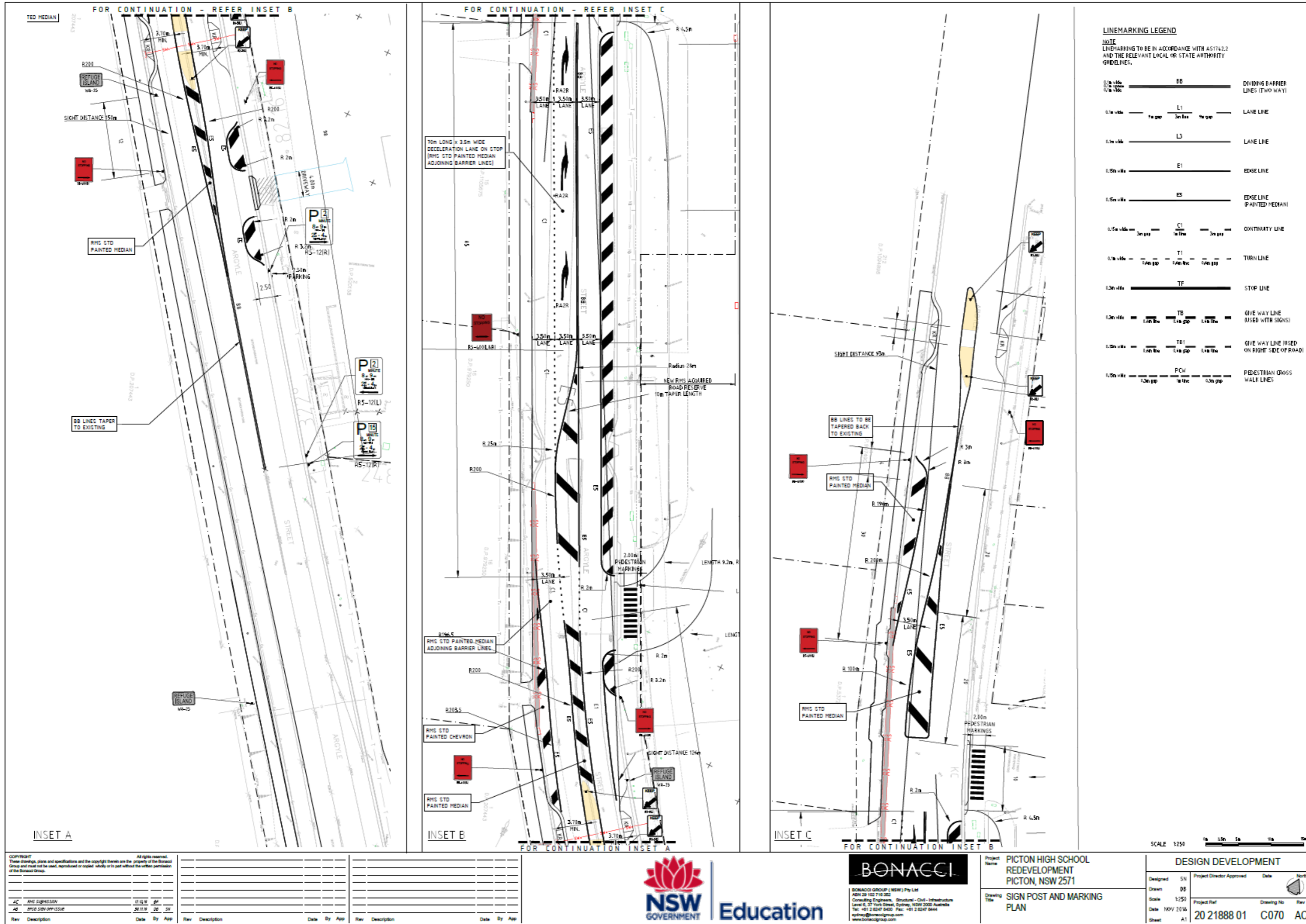


Figure 4 Sign Post and marking plan for Argyle Street. Bonacci, December 2018, drawing number C070, revision AC.

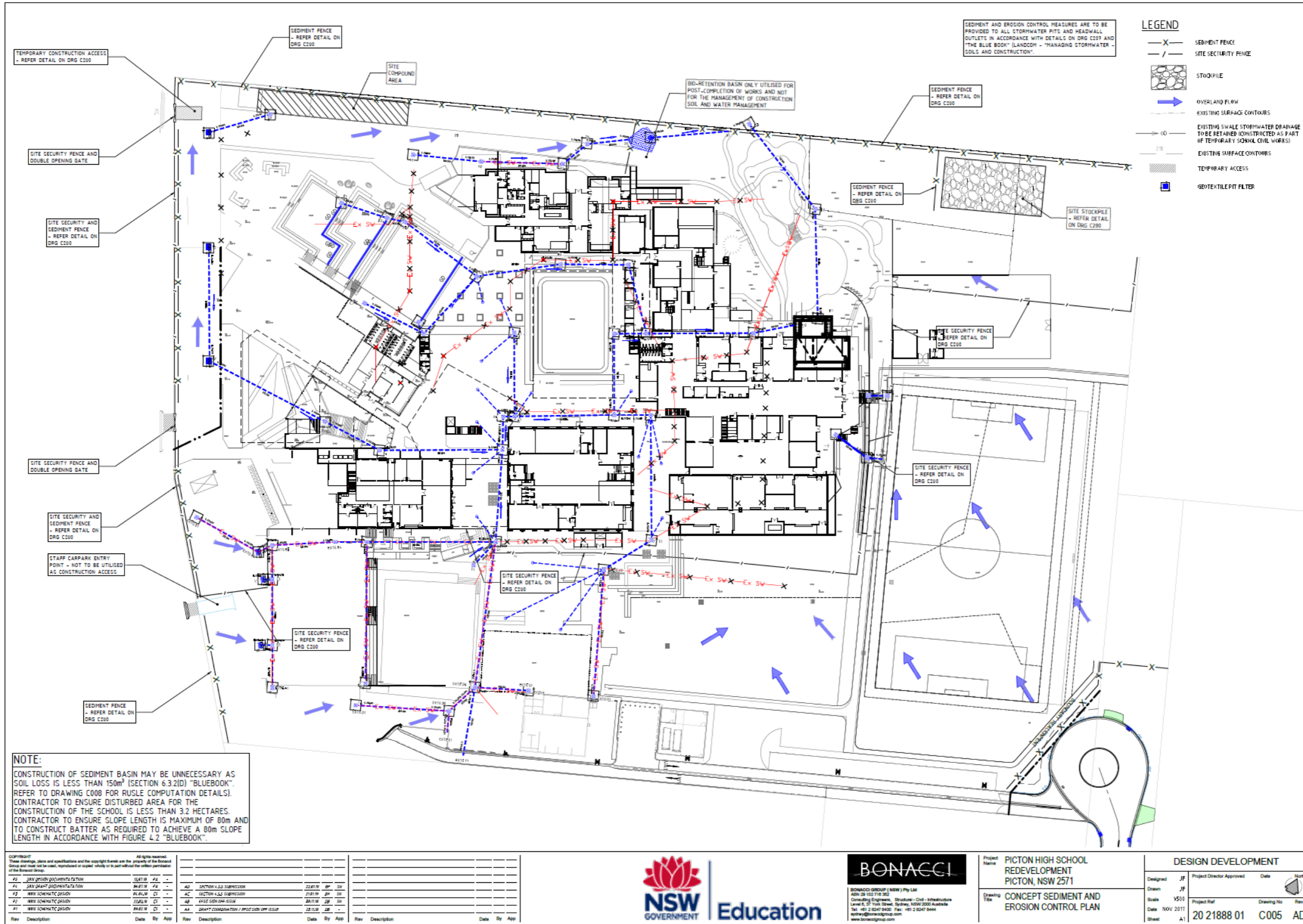


Figure 5 Concept sediment and erosion control plan. Bonacci, February 2019, Drawing number C005, revision AD.

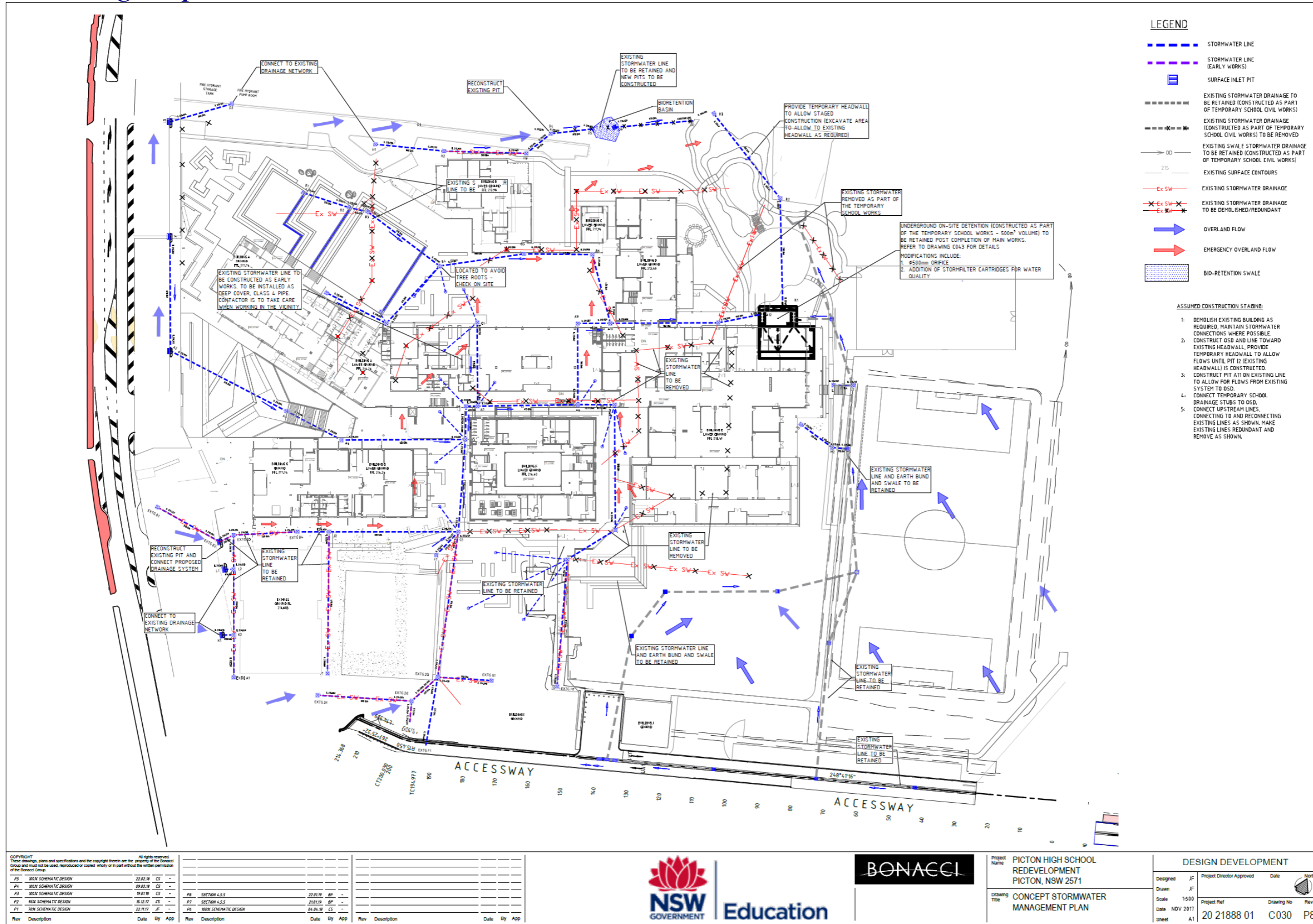


Figure 6 Concept stormwater management plan. Bonacci, January 2019, Drawing number C030, revision P8.



Project Name	PICTON HIGH SCHOOL REDEVELOPMENT PICTON, NSW 2571		
Drawing Title	CONCEPT STORMWATER MANAGEMENT PLAN		
DESIGN DEVELOPMENT			
Designed	JF	Project Director Approved	Date
Drawn	JF		
Scale	1:500	Project Ref	Drawing No
Date	NOV 2017	20 21888 01	C030
Sheet	A1		P8

Appendix I Bushfire Risk Mitigation Memorandum

Memorandum

Subject:	AS3959 BAL 12.5 Provisions		
Author:	BLP		
Project:	Picton High School	Date:	25/03/2019
Ref/Job no:	17003	Pages:	2



AS3959 BAL12.5 Provision – Bushfire Risk Mitigation

This report is prepared to demonstrate that the Project has been designed and documented with provisions for construction methodology adaptable to BAL 12.5 zone. The documentation has been assessed in accordance with Section 5 of AS 3595-2009. The Bushfire Attack Level (BAL) 12.5 is applicable within the 100m strip of the eastern boundary. Therefore BAL 12.5 is applicable to Building E (Science & Maths Learning Block) and Building K (Agriculture Learning block). This memo provides a consolidated summary on the intended strategy to minimise risk of Bushfire.

- Please note that there is no external automatic sliding doors in building E and K to eliminate the air gap typically found in an automatic door system.
- Roller shutter has been specified to have guide tracks with a maximum gap no greater than 3mm and shall be fitted with a nylon brush that is in contact with the door to comply with AS3959.
- Opening in vented roof lights, roof ventilators or vent pipes shall be fitted with ember guards made from a mesh or perforated sheet with a minimum aperture of 2mm, made in corrosion resistant steel, bronze or aluminium. Refer also to Hydraulics services drawing HY010 for reference.
- The Architectural site plan indicate the 100m zone from the Eastern Boundary and the inclusion on the entire building E & K within the BAL12.5 compliant zone.
- Ember attack weephole covers have been specified in the Brickwork trade specification section. Refer to page 4 of specification section 0331
- Irrespective of BAL12.5 requirement, all openable windows have been specified with stainless steel 316 mesh with aperture less than 2mm. This serves mesh serves the purpose for vandalism prevention, fall prevention and bushfire prevention.
<https://www.kidscreen.com.au/kidscreen-mesh>

- Each mechanical roof ventilator has been specified to be fitted with a motorised damper. Section 17 page 51 of the mechanical services specification states that “All roof ventilators installed on building E & K roof shall be fitted with spark guards that comply with AS 3959 to achieve a BAL 12.5 rating”
- The edge of metal roofing on over building E & K to be constructed with the following insulation system
 - (a) BAL12.5 compliant including 300mm wide ember / thermal seal wrap (CSR - Thermoseal Resiwrap or equivalent) to the entire roof area over the top of purlins.
 - (b) Immediately above the fascia install CSR - Multitel BAL12.5 – 40 Blanket extending up the roof and over the first purlin. Compress with the roof sheeting
- Architectural detail and specification include vermin & wire mesh with aperture no less than 2mm at the bottom row of external Equitone lightweight façade cladding.



Enc:

- Bushfire assessment prepared by Peterson Bushfire (16 May 2018).
- BLP's in-house assessment against BAL12.5's requirements (27 March 2019)



Bushfire Assessment

**Picton High School
Redevelopment**

480 Argyle Street, Picton

Billard Leece Partnership

16 May 2018

(Ref: 17152)

report by
david peterson

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FPA AUSTRALIA (NO.BPAD18882)
BPAD LEVEL 3 ACCREDITED PRACTITIONER
ABN 28 607 444 833

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2	Bushfire hazard assessment.....	7
3	Bushfire protection measures.....	11
4	Conclusion and recommendations.....	14
	References	15
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1 Introduction

Street or property name:	480 Argyle Street	
Suburb, town or locality:	Picton	Postcode: 2571
Lot/DP no:	Lot 2 DP 520158	
Local Government Area:	Wollondilly Shire Council	
Development type:	Infill Special Fire Protection Purpose (SFPP)	

1.1 Background

Billard Leece Partnership commissioned Peterson Bushfire to prepare a bushfire assessment of the proposed redevelopment of Picton High School. This report presents the assessment and recommendations to achieve compliance with the relevant bushfire protection legislation.

This bushfire assessment has been prepared by a consultant accredited by the Fire Protection Association of Australia's BPAD scheme (Accreditation No. BPD-L3-18882).

1.2 Location and description of school

The school site is situated at the southern edge of the township of Picton as shown in Figure 1. Predominantly surrounded by cleared and managed lands, the 'bushfire prone vegetation' closest to the school site consists of forest on the steep slopes of Stonequarry Creek over 140 m to the east of the school boundary.

1.3 Proposed development

The proposal consists of the replacement of most of the school buildings with a contemporary, purpose-built design to allow for the capacity of 1,500 students with core facilities for 2,000 students and future expansion zones for an additional 500 students. Seven buildings will be retained and integrated into the new works as shown on the development site plan included as Figure 2.

1.4 Secretary's Environmental Assessment Requirements (SEARs)

This assessment has been prepared to inform the preparation of an EIS for the proposed redevelopment. Secretary's Environmental Assessment Requirements (SEARs) have been issued under Section 78A(8A) of the *Environmental Planning and Assessment Act 1979* and Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*, listing 'bushfire' as a Key Issue at item No. 19. This technical report addresses Item No. 19 of the SEARs:


SEAR Application Number SSD 8640 (Issued 17 August 2017):

Key Issue No. 19: Bushfire: Address bushfire hazard and if required, prepare a report that addresses the requirements for Special Fire Protection Purpose Development as detailed in Planning for Bushfire Protection 2006 guidelines.

The NSW Rural Fire Service (RFS) document *Planning for Bushfire Protection 2006* (referred to as PBP throughout this report) prescribes bushfire protection measures for development proposals on bushfire prone land. Section 4.2 of PBP addresses Special Fire Protection Purpose (SFPP) development and outlines the assessment methodology and protection measures, such as asset protection zones building setbacks from hazards, building construction standards to withstand bushfire attack (i.e. Bushfire Attack Levels – ‘BALs’), adequate road access for emergency response and evacuation, the provision of water supply for fire-fighting, and vegetation management.



Legend

 Subject Land



Date: 19/12/2017

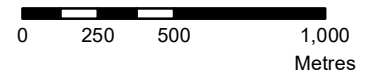


Figure 1: The Location of the Subject Land

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



Legend





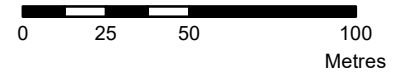
-  Subject Land
-  Argyle Street
-  RMS Land
-  Wonga Road

Figure 2: Proposal



Date: 4/04/2018



Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

2 Bushfire hazard assessment

An assessment of the bushfire hazard is necessary to determine the application of bushfire protection measures such as Asset Protection Zone location and dimension and Bushfire Attack Level. The following sub-sections provide a detailed account of the vegetation communities (bushfire fuels) and the topography (effective slope) that combine to create the bushfire hazard that may affect bushfire behaviour approaching the development site.

An inspection of the site and adjacent bushfire hazard occurred on 29th November 2017. Photographs are included in Appendix 1.

2.1 Assessment of bushfire prone land mapping

The Wollondilly Bushfire Prone Land Map as it relates to the school site is shown in Figure 3. The '100 m Vegetation Buffer' extends marginally across the eastern boundary of the school. The mapped 'bushfire prone vegetation' consists of the forest further to the east of the school site as discussed below.

2.2 Predominant vegetation

The vegetation within 140 m of the school site has been assessed in accordance with the methodology specified within PBP. The 140 m assessment area and predominant vegetation is mapped on Figure 4, which shows that the bushfire hazard lies to the east of the school site only. The remaining sides of the school (north, west and south) consist of cleared and developed lands for a considerable distance. The school grounds are managed and consist of buildings, playing fields and scattered trees in the north-eastern corner with a cleared and mown understorey.

There are three hazard types within the 140 m assessment area to the east of the school site as described below.

Forest

Western Sandstone Gully Forest is located on the steep slopes leading down to Stonequarry Creek. Classified as 'forest', the vegetation is beyond the 140 m assessment area and is therefore not the predominant vegetation. However, the presence of vast tracts of forest within the steeply incised gullies to the east is the primary influencing factor underpinning the bushfire risk at the school, and therefore the forest has been considered in determining the appropriate bushfire protection measures.

Grassland

Between the forest and the school boundary is an unmaintained cleared area that has been colonised by predominantly Kikuyu grass. Regeneration of native shrubs and trees has been minimal due to the past use of the area as a tip, which has since been covered in fill creating an uneven, hummocky surface covered in Kikuyu grass. Even though not predominantly

consisting of native grasses, it is classified as 'grassland' due to the unmaintained nature of the land by grazing or other means.

Low hazard corridor

Along the eastern boundary within the adjacent properties is a narrow corridor of forest that is classified as 'low hazard'. The corridor is highly disturbed with an open understorey colonised by Kikuyu Grass and other exotics such as Bamboo. It also contains the unsealed extension on Wonga Road and access trails within its limits.

2.3 Effective slope

The 'effective slope' influencing fire behaviour has been assessed in accordance with the methodology specified within PBP. This is conducted by measuring the slope that would most influence fire behaviour where the hazard occurs within 100 m of the development proposal. The slope was determined using a 2 m contour layer as shown on Figure 4.

Forest

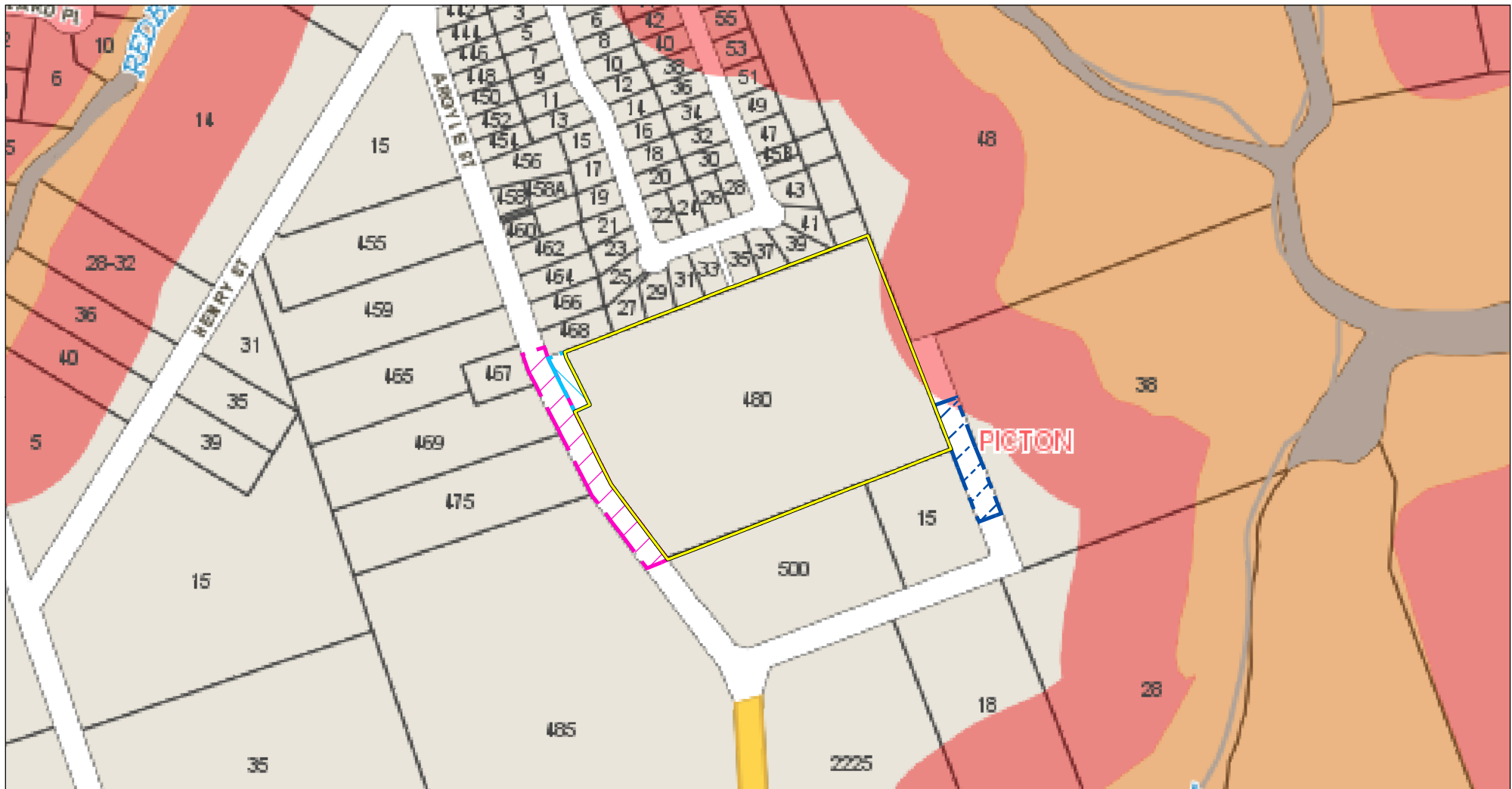
The forest is located greater than 100 m from the school boundary therefore does not technically fall into the assessment area. The forest is located on the steeply incised gully walls of Stonequarry Creek, on a gradient exceeding the PBP slope class of 'Downslope >15-18 degrees'.

Grassland

Between the school boundary and the steep downslopes is land that is relatively flat or gently sloping uphill. Therefore, the grassland is located on a gradient within the PBP slope class of 'upslope/flat'.

Low hazard corridor

Like that of the grassland, the low hazard is also on land within the PBP slope class of 'upslope/flat'.



Legend









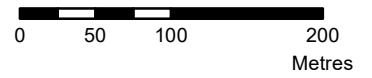
-  Subject Land
-  Bushfire Prone Land
-  RMS Land
-  Vegetation Buffer
-  Argyle Street
-  Vegetation Category 1
-  Wonga Road
-  Vegetation Category 2

Figure 3: Bushfire Prone Land



Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap



Legend

- Subject Land
- Argyle Street
- RMS Land
- Wonga Road
- Contour - 2m
- Assessment Area - 140m

Vegetation Formations

- Forest
- Grassland



Date: 4/04/2018

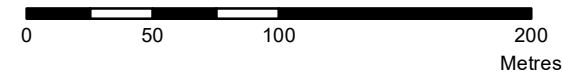


Figure 4: Bushfire Hazard Analysis

Coordinate System: GDA 1994 MGA Zone 56

Imagery: © Nearmap

3 Bushfire protection measures

PBP requires the assessment of a suite of bushfire protection measures that in total provide an adequate level of protection for SFPP development. The measures required to be assessed are listed in Table 1 below and are discussed in detail in the remainder of this section.

Table 1: PBP bushfire protection measures

Bushfire protection measures	Considerations
Asset Protection Zones (APZ)	Location and dimension of APZ setbacks from identified hazards.
Construction standards (BALs)	Application of BALs to new building works.
Access	Assessment to include access and egress, perimeter access and design standards of internal roads.
Water supply and other utilities	List requirements for reticulated water supply and hydrant provisions, and any static water supplies for fire-fighting.

3.1 Asset protection zones (APZ)

Using the vegetation and slope data discussed in Section 2 and mapped on Figure 4, APZs suitable for the development of a school have been calculated. The available APZ is indicated on Figure 4 and listed in Table 2 below. The APZ will consist of the managed school grounds and will exceed the minimum requirements. Additional APZ establishment is not required.

Table 2: APZ determination

Location ¹	Vegetation ²	Slope ³	Required APZ ⁴	Proposed APZ ⁵	APZ provided by:
East	Forest	Downslope >15-18°	100 m	77 m + 140 m	77 m within school plus 140 m of low hazard and grassland
	Grassland	Upslope/ Flat	32 m	77 m	77 m within school
	Low Hazard	Upslope/ Flat	30 m	77 m	77 m within school
Remaining directions	Managed	Not required	Not required	>100 m	Managed lands

¹ Direction of assessment from boundary of school site. Refer to Figure 4.

² Predominant vegetation classification over 140 m from the boundary of school site.

³ Effective slope assessed over 100 m from the boundary of school site where the bushfire hazard occurs.

⁴ Asset Protection Zone (APZ) required by Table A2.6 of Planning for Bushfire Protection 2006. Determined by the NBC Bushfire Attack Assessor v2.1 for the grassland hazard.

⁵ Asset Protection Zone (APZ) provided by proposed and/or existing management arrangements.

3.2 Vegetation management and landscaping

The school site currently complies with the performance requirement of an Inner Protection Area (IPA) as described by PBP. Additional vegetation management or tree removal is not required.

Any proposed landscaping across the school site should comply with the principles listed within Appendix 5 of PBP.

3.3 Bushfire Attack Level (BAL)

The Bushfire Attack Level (BAL) for the proposed school development has been determined in accordance with a Method 1 assessment under Australian Standard *AS 3959-2009 Construction of buildings in bushfire-prone areas* (AS 3959). The BAL extends outwards 100 m from the forest and low hazard, and 50 m from the grassland. The eastern tip of the proposed school is within the area affected by BAL-12.5 (i.e. within 100 m of the eastern boundary). Only 23 m of the eastern tip of the proposed science and mathematics wing is affected by BAL-12.5.

It is recommended that the entire science and mathematics wing up to the internal fire wall where the wing adjoins the proposed staff office is designed and constructed to comply with BAL-12.5. This zone extends approximately 145 m from the eastern boundary.

The NSW variation to AS 3959 is to be applied to BAL specifications. The variation can be found in the *Planning for Bushfire Protection Addendum Appendix 3 May 2010*.

3.4 Access

Argyle Street and Wonga Road provides the public road access to the school site. Both roads and connecting roads comply with the PBP Acceptable Solutions for the design and construction of public roads.

The primary access to the school will remain unchanged and consists of the drive-through access road off Argyle Street forming the western boundary of the school site. The access is designed to cater for bus movements and therefore suitable for fire and emergency authorities. Secondary and perimeter access is provided by Wonga Road forming the eastern boundary and providing additional separation from the identified hazards to the east. The existing access achieves the aim and objectives of PBP. Additional access provisions for bushfire protection are not required.

3.5 Water supply and utilities

Water supply

Hydrants are available along Argyle Street and Wonga Road as well as through the school grounds. The new build will require a hydrant design that complies with *AS 2419.1 – 2005 Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419). The development will require the installation of hydrants on site to ensure a compliant coverage.

Electricity supply

Where overhead electrical transmission lines are installed no part of a tree should be closer to a powerline than the distance specified in *ISSC 3 Guideline for Managing Vegetation Near Power Lines* (Industry Safety Steering Committee 2005).

Gas supply

Any gas services are to be installed and maintained in accordance with *AS/NZS 1596-2008 The storage and handling of LP gas*.

4 Conclusion and recommendations

4.1 Conclusive summary

The proposal consists of the redevelopment of Picton High School which will see most of the school buildings replaced with a new build designed to cater for an additional 1,500 students. The bushfire hazard within 140 m of the school site is a low hazard corridor and grassland, which will be separated from the new build by 78 m consisting of the managed school grounds. Additional APZ establishment or vegetation management is not required.

It is recommended to apply a BAL-12.5 (AS 3959) construction standard to the new build to address potential ember attack from the low hazard and forests located further to the east.

This assessment concludes that, with the adoption of the recommendations (see Section 4.2 below), the proposal complies with the provisions of *Planning for Bushfire Protection 2006*. As such, this assessment demonstrates compliance with the Secretary's Environmental Assessment Requirements (SEARs) Item No. 19 "*Bushfire: Address bushfire hazard and if required, prepare a report that addresses the requirements for Special Fire Protection Purpose Development as detailed in Planning for Bushfire Protection 2006 guidelines.*"

4.2 Recommendations

The recommendations made within this assessment are repeated below:

1. Any landscaping is to comply with the principles listed within Appendix 5 of PBP.
2. It is recommended that the entire science and mathematics wing up to the internal fire wall where the wing adjoins the proposed staff office is designed and constructed to comply with BAL-12.5. The NSW variation to AS 3959 is to be applied in addition to the BAL specifications. The variation is listed within *Planning for Bushfire Protection Addendum Appendix 3 May 2010*.
3. Hydrants are to be installed to achieve compliance with *AS 2419.1 – 2005 Fire Hydrant Installations - System Design, Installation and Commissioning* (AS 2419).
4. Where overhead electrical transmission lines are installed no part of a tree should be closer to a powerline than the distance specified in *ISSC 3 Guideline for Managing Vegetation Near Power Lines* (Industry Safety Steering Committee 2005).
5. Any gas services are to be installed and maintained in accordance with *AS/NZS 1596-2008 The storage and handling of LP gas* (Standards Australia, 2008).



David Peterson



References

Industry Safety Steering Committee. 2005. *ISSC 3 Guideline for Managing Vegetation Near Power Lines*. (updated from Energy Australia. 2002. *Network Standard NS 179 (Vegetation Safety Clearances)*).

NSW Rural Fire Service (RFS). 2006. *Planning for Bush Fire Protection: A Guide for Councils, Planners, Fire Authorities, Developers and Home Owners*. Australian Government Publishing Service, Canberra.

Standards Australia. 2005. *Fire hydrant installations - System design, installation and commissioning*, AS2419.1, Fourth edition 2005, Standards Australia International Ltd, Sydney.

Standards Australia. 2008. *The storage and handling of LP Gas*, AS/NZS 1596-2008, Fourth edition 2005, Standards Australia International Ltd, Sydney.

Standards Australia. 2009 (Amendment 3). *Construction of buildings in bushfire-prone areas*, AS 3959, Third edition 2009, Standards Australia International Ltd, Sydney.

Appendix 1 - Photographs



Photograph 1: Forest outside of the 140 m assessment area to the east of the school site



Photograph 2: Grassland over old tip to the east between forest and school site



Photograph 3: Low hazard corridor to the east between school site and grassland



Photograph 4: Managed north-eastern corner of the school site



Photograph 5: Argyle Street providing primary access point on western boundary



Photograph 6: Through access drive off Argyle Street on western boundary



Photograph 7: Wonga Road providing secondary access point on eastern boundary



Photograph 8: Unsealed extension of Wonga Road providing perimeter access to east

SECTION 5 CONSTRUCTION FOR BUSHFIRE ATTACK LEVEL 12.5 (BAL—12.5)

5.1 GENERAL

A building assessed in Section 2 as being BAL—12.5 shall comply with Section 3 and Clauses 5.2 to 5.8.

A3 | 'Text deleted'

Any element of construction or system that satisfies the test criteria of AS 1530.8.1 may be used in lieu of the applicable requirements contained in Clauses 5.2 to 5.8 (see Clause 3.8).

NOTE: BAL—12.5 is primarily concerned with protection from ember attack and radiant heat up to and including 12.5 kW/m² where the site is less than 100 m from the source of bushfire attack.

5.2 SUBFLOOR SUPPORTS

This Standard does not provide construction requirements for subfloor support posts, columns, stumps, piers and poles.

NOTE: The exclusion of requirements for subfloor supports applies to the principal building only and not to verandas, decks, steps, ramps and landings (see Clause 5.7).

BLP Comments: No Sub-floor in the Picton Project

A1 | **C5.2** *Ideally, storage of combustible materials beneath a floor at this BAL would not occur and, on this assumption, there is no requirement to enclose the subfloor space or to protect the subfloor supports, or the bearers, joists and flooring from bushfire attack; however, should combustible materials be stored, it is recommended the area be protected as materials stored in the subfloor space may be ignited by embers and cause an impact to the building.*

5.3 FLOORS

5.3.1 Concrete slabs on ground

This Standard does not provide construction requirements for concrete slabs on the ground.

BLP Comments: Concrete slab on ground & suspended through out the project

5.3.2 Elevated floors

This Standard does not provide construction requirements for elevated floors, including bearers, joists and flooring.

BLP Comments: Concrete slab on ground & suspended through out the project

5.4 EXTERNAL WALLS

5.4.1 Walls

The exposed components of an external wall that are less than 400 mm from the ground or less than 400 mm above decks, carport roofs, awnings and similar elements or fittings having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the wall (see Figure D3, Appendix D) shall be:

- (a) Non-combustible material.

NOTE: Examples include, but are not limited to, the following (with a minimum of 90 mm in thickness):

- (a) Full masonry or masonry veneer walls with an outer leaf of clay, concrete, calcium silicate or natural stone. ← **BLP Comments: Masonry wall at low level with weephole amber attack, bushfire compliance cover.**
- (b) Precast or in situ walls of concrete or aerated concrete. (N/A)
- (c) Earth wall including mud brick. (N/A)

A3

or

A2 (b) Timber logs of a species with a density of 680 kg/m³ or greater at a 12 percent moisture content; of a minimum nominal overall thickness of 90 mm and a minimum thickness of 70 mm (see Clause 3.1.1); and gauge planed. (N/A)

or

(c) Cladding that is fixed externally to a timber-framed or a steel-framed wall and is—

- A3 (i) non-combustible material; or ← (BLP : Claddings material are made in 8mm thick CFC and Corrugated Colorbond sheeting)
- (ii) fibre-cement a minimum of 6 mm in thickness; or ←
- (iii) bushfire-resisting timber (see Appendix F); or (N/A)
- (iv) a timber species as specified in Paragraph E1, Appendix E; or (N/A)
- (v) a combination of any of Items (i), (ii), (iii) or (iv) above. (N/A)

or

(d) A combination of any of Items (a), (b) or (c) above. (N/A)

This Standard does not provide construction requirements for the exposed components of an external wall that are 400 mm or more from the ground or 400 mm or more above decks, carport roofs, awnings and similar elements or fittings having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the wall (see Figure D3, Appendix D).

5.4.2 Joints

All joints in the external surface material of walls shall be covered, sealed, overlapped, backed or butt-jointed to prevent gaps greater than 3 mm. (BLP: Sealant details are specified or detailed)

5.4.3 Vents and weepholes

A3 Vents and weepholes in external walls shall be screened with a mesh with a maximum aperture of 2 mm, made of corrosion-resistant steel, bronze or aluminium, except where the vents and weepholes have an aperture less than 3 mm (see Clause 3.6), or are located in an external wall of a subfloor space. (BLP: This product has been specified <http://weepa.com.au/products/high-performance-bushfire-weepa/>)

5.5 EXTERNAL GLAZED ELEMENTS AND ASSEMBLIES AND EXTERNAL DOORS

5.5.1 Bushfire shutters

Where fitted, bushfire shutters shall comply with Clause 3.7 and be made from—

- A2 (a) non-combustible material; or ← (BLP: Louvers in Building E & K has been specified with bushfire compliant stainless steel screen. Refer to SCN 101- on the technical reference)
- A1 (b) a timber species as specified in Paragraph E1, Appendix E; or
- (c) bushfire-resisting timber (see Appendix F); or
- (d) a combination of any of Items (a), (b) or (c) above.

5.5.1A Screens for windows and doors

A1 Where fitted, screens for windows and doors shall have a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion-resistant steel, bronze or aluminium. Gaps between the perimeter of the screen assembly and the building element to which it is fitted shall not exceed 3 mm.


A1 A2 The frame supporting the mesh or perforated sheet shall be made from—

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- A1 | (a) metal; *or*
 A2 | (b) bushfire-resisting timber (see Appendix F); *or*
 | (c) a timber species as specified in Paragraph E2, Appendix E.

5.5.2 Windows

Window assemblies shall comply with one of the following:

- (a) They shall be completely protected by a bushfire shutter that complies with Clause 5.5.1  (BLP: Windows in Building E & K has been specified with bushfire compliant stainless steel screen. Refer to SCN 101- on the technical reference)
or
- A1 | (b) They shall be completely protected externally by screens that comply with Clause 5.5.1A.
or
- (c) They shall comply with the following:
- (i) For window assemblies less than 400 mm from the ground or less than 400 mm above decks, carport roofs, awnings and similar elements or fittings having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the window frame (see Figure D3, Appendix D), window frames and window joinery shall be made from:
- A2 | (A) Bushfire-resisting timber (see Appendix F). (N/A)
or
- A1 | (B) A timber species as specified in Paragraph E2, Appendix E. (N/A)
or
- (C) Metal. (BP: All window and door frames are made in extruded aluminium or steel)
or
- (D) Metal-reinforced PVC-U. The reinforcing members shall be made from aluminium, stainless steel, or corrosion-resistant steel and the frame and sash shall satisfy the design load, performance and structural strength of the member. (N/A)
- (ii) Externally fitted hardware that supports the sash in its functions of opening and closing shall be metal. (N/A)
- (iii) Where glazing is less than 400 mm from the ground or less than 400 mm above decks, carport roofs, awnings and similar elements or fittings having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the window frame (see Figure D3, Appendix D), the glazing shall be Grade A safety glass minimum 4 mm thickness, or glass blocks with no restriction on glazing methods. (BLP: All external glazing is viridian comfort plus 6.38)
 A3 | NOTE: Where double glazed units are used the above requirements apply to the external face of the window assembly only. (N/A)
- (iv) Where glazing is other than that specified in Item (iii) above, annealed glass may be used.
- A1 | (v) The openable portions of windows shall be screened internally or externally with screens that comply with Clause 5.5.1A.
 (BLP: Openable Windows in Building E & K has been specified with bushfire compliant stainless steel screen. Refer to SCN 101- on the technical reference)

A2 **C5.5.2** *Screening of the openable portions of all windows is required in all BALs to prevent the entry of embers to the building when the window is open. Screening of the openable and fixed portions of some windows is required in some BALs to reduce the effects of radiant heat on some types of glass.*

If the screening is required to reduce the effects of radiant heat on the glass, the screening has to be external so that the glass in the openable portion of the window will be 'protected' when it is shut.

*If the screening is required **only** to prevent the entry of embers, the screening may be fitted externally or internally.*

5.5.3 Doors—Side-hung external doors (including French doors, panel fold and bi-fold doors)

Side-hung external doors, including French doors, panel fold and bi-fold doors, shall comply with one of the following:

- A2 (a) Doors and door frames shall be protected by bushfire shutters that comply with Clause 5.5.1. (N/A)
- or*
- (b) Doors and door frames shall be protected externally by screens that comply with Clause 5.5.1A. (N/A)
- or*
- (c) Doors and door frames shall comply with the following:
- (i) Doors shall be— (BLP: All external doors in Building E & K are made in solid core with steel frame or glazed in aluminium frame)
- (A) non-combustible; *or*
- A3 (B) a solid timber, laminated timber or reconstituted timber door, having a minimum thickness of 35 mm for the first 400 mm above the threshold; *or*
- (C) a door, including a hollow core door, with a non-combustible kickplate on the outside for the first 400 mm above the threshold; *or*
- (D) a door, including a hollow core door, protected externally by a screen that complies with Clause 5.5.1A; *or*
- (E) a fully framed glazed door, where the framing is made from materials specified for bushfire shutters (see Clause 5.5.1), or from a timber species as specified in Paragraph E2, Appendix E.
- (ii) Where doors incorporate glazing, the glazing shall comply with the glazing requirements for windows. (BLP: All external glazing is viridian comfort plus 6.38)
- A1 (iii) Doors shall be tight-fitting to the door frame and to an abutting door, if applicable.
- A1 (iv) Where any part of the door frame is less than 400 mm from the ground or less than 400 mm above decks, carport roofs, awnings and similar elements or fittings having an angle less than 18 degrees to the horizontal and extending more than 110 mm in width from the door (see Figure D3, Appendix D), that part of the door frame shall be made from:
- A2 (A) Bushfire-resisting timber (see Appendix F). (N/A)
- or*
- A1 (B) A timber species as specified in Paragraph E2, Appendix E. (N/A)

or

- (C) Metal. (BLP: All external doors in Building E & K are made in Galvanised steel frame or aluminium frame)

or

- (D) Metal-reinforced PVC-U. The reinforcing members shall be made from aluminium, stainless steel, or corrosion-resistant steel and the door assembly shall satisfy the design load, performance and structural strength of the member. (N/A)

- (v) Weather strips, draught excluders or draught seals shall be installed at the base of side-hung external doors. (BLP: Standard specification for weather proofing)

5.5.4 Doors—Sliding doors

(BLP - No external sliding doors or automatic sliding doors in Building E & K)

Sliding doors shall comply with one of the following:

- A3 (a) They shall be completely protected by a bushfire shutter that complies with Clause 5.5.1.
- or
- A1 (b) They shall be completely protected externally by screens that comply with Clause 5.5.1A.
- or
- A1 (c) They shall comply with the following:
- (i) Any glazing incorporated in sliding doors shall be Grade A safety glass complying with AS 1288.
- (ii) Both the door frame supporting the sliding door and the framing surrounding any glazing shall be made from:
- (A) Bushfire-resisting timber (see Appendix F).
- or
- (B) A timber species as specified in Paragraph E2, Appendix E.
- or
- (C) Metal.
- or
- A1 (D) Metal-reinforced PVC-U. The reinforcing members shall be made from aluminium, stainless steel, or corrosion-resistant steel and the frame and the sash shall satisfy the design load, performance and structural strength of the member.
- (iii) There is no requirement to screen the openable part of the sliding door. However, if screened, the screens shall comply with Clause 5.5.1A.
- NOTE: The construction of manufactured sliding doors should prevent the entry of embers when the door is closed. There is no requirement to provide screens to the openable part of these doors as it is assumed that a sliding door will be closed if occupants are not present during a bushfire event. Screens of materials other than those specified may not resist ember attack.
- (iv) Sliding doors shall be tight-fitting in the frames.

5.5.5 Doors—Vehicle access doors (garage doors)

The following apply to vehicle access doors:

- A1
- (a) The lower portion of a vehicle access door that is within 400 mm of the ground when the door is closed (see Figure D4, Appendix D) shall be made from—
 - (i) non-combustible material; *or*
 - (ii) bushfire-resisting timber (see Appendix F); *or*
 - (iii) fibre-cement sheet, a minimum of 6 mm in thickness; *or*
 - (iv) a timber species as specified in Paragraph E1, Appendix E; *or*
 - (v) a combination of any of Items (i), (ii), (iii) or (iv) above.
 - (b) Panel lift, tilt doors or side-hung doors shall be fitted with suitable weather strips, draught excluders, draught seals or guide tracks, as appropriate to the door type, with a maximum gap no greater than 3 mm.
 - (c) Roller doors shall have guide tracks with a maximum gap no greater than 3 mm and shall be fitted with a nylon brush that is in contact with the door (see Figure D4, Appendix D). (BLP: Specified and noted on door schedule)
 - (d) Vehicle access doors shall not include ventilation slots.

5.6 ROOFS (INCLUDING VERANDA AND ATTACHED CARPORT ROOFS, PENETRATIONS, EAVES, FASCIAS, GABLES, GUTTERS AND DOWNPIPES)

5.6.1 General

The following apply to all types of roofs and roofing systems:

- (a) Roof tiles, roof sheets and roof-covering accessories shall be non-combustible. (BLP: corrugated Colorbond roofing)
- (b) The roof/wall junction shall be sealed, to prevent openings greater than 3 mm, either by the use of fascia and eaves linings or by sealing between the top of the wall and the underside of the roof and between the rafters at the line of the wall. (BLP: as detailed)
- (c) Roof ventilation openings, such as gable and roof vents, shall be fitted with ember guards made of non-combustible material or a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion-resistant steel, bronze or aluminium. (Refer to mech services specification for bush fire compliant specification)

5.6.2 Tiled roofs (N/A)

Tiled roofs shall be fully sarked. The sarking shall—

- (a) be located on top of the roof framing, except that the roof battens may be fixed above the sarking;
- (b) cover the entire roof area including ridges and hips; and
- (c) extend into gutters and valleys.

5.6.3 Sheet roofs

(BLP: as detailed)

Sheet roofs shall—

- (a) be fully sarked in accordance with Clause 5.6.2, except that foil-backed insulation blankets may be installed over the battens; and
- (b) have any gaps greater than 3 mm (such as under corrugations or ribs of sheet roofing and between roof components) sealed at the fascia or wall line and at valleys, hips and ridges by—
 - (i) a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion-resistant steel, bronze or aluminium; *or*
 - (ii) mineral wool; *or*
 - (iii) other non-combustible material; *or*

- (iv) a combination of any of Items (i), (ii) or (iii) above.

C5.6.3 *Sarking is used as a secondary form of ember protection for the roof space to account for minor gaps that may develop in sheet roofing.*

5.6.4 Veranda, carport and awning roofs

The following apply to veranda, carport and awning roofs:

- (a) A veranda, carport or awning roof forming part of the main roof space [see Figure D1(a), Appendix D] shall meet all the requirements for the main roof, as specified in Clauses 5.6.1, 5.6.2, 5.6.3, 5.6.5 and 5.6.6. (N/A)
- (b) A veranda, carport or awning roof separated from the main roof space by an external wall [see Figures D1(b) and D1(c), Appendix D] complying with Clause 5.4 shall have a non-combustible roof covering. ↑

NOTE: There is no requirement to line the underside of a veranda, carport or awning roof that is separated from the main roof space. (BLP: All covered walkways have corrugated colorbond roof & sub hood has 8mm CFC cladding)

5.6.5 Roof penetrations

The following apply to roof penetrations: (BLP: specified skylight meets the bushfire protection requirement - refer to WIN-303 in the technical sheet of the specification)

- (a) Roof penetrations, including roof lights, roof ventilators, roof-mounted evaporative cooling units, aerials, vent pipes and supports for solar collectors, shall be adequately sealed at the roof to prevent gaps greater than 3 mm. The material used to seal the penetration shall be non-combustible.

- (b) Openings in vented roof lights, roof ventilators or vent pipes shall be fitted with ember guards made from a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion-resistant steel, bronze or aluminium. (BLP: as specified)

This requirement does not apply to the exhaust flues of heating or cooking devices with closed combustion chambers.

In the case of gas appliance flues, ember guards shall not be fitted.

NOTE: Gasfitters are required to provide a metal flue pipe above the roof and terminate with a certified gas flue cowl complying with AS 4566. Advice may be obtained from State gas technical regulators.

- (c) All overhead glazing shall be Grade A safety glass complying with AS 1288. ← (BLP: Proprietary roof light with safety glass specified. See WIN-303 in technical specification)
- (d) Glazed elements in roof lights and skylights may be of polymer provided a Grade A safety glass diffuser, complying with AS 1288, is installed under the glazing. Where glazing is an insulating glazing unit (IGU), Grade A toughened safety glass minimum 4 mm thickness, shall be used in the outer pane of the IGU.
- (e) Flashing elements of tubular skylights may be of a fire-retardant material, provided the roof integrity is maintained by an under-flashing of a material having a flammability index no greater than 5.
- (f) Evaporative cooling units shall be fitted with non-combustible butterfly closers as close as practicable to the roof level or the unit shall be fitted with non-combustible covers with a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion-resistant steel, bronze or aluminium. (BLP: No evaporative cooling on the project)
- (g) Vent pipes made from PVC are permitted.

5.6.6 Eaves linings, fascias and gables

The following apply to eaves linings, fascias and gables:

- (a) Gables shall comply with Clause 5.4.

- (b) Eaves penetrations shall be protected the same as for roof penetrations, as specified in Clause 5.6.5. (N/A)
- (c) Eaves ventilation openings greater than 3 mm shall be fitted with ember guards made of non-combustible material or a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion-resistant steel, bronze or aluminium. (N/A)

Joints in eaves linings, fascias and gables may be sealed with plastic joining strips or timber storm moulds.

This Standard does not provide construction requirements for fascias, bargeboards and eaves linings.

5.6.7 Gutters and downpipes

A3 | This Standard does not provide material requirements for—

- (a) gutters, with the exception of box gutters; and
- (b) downpipes.

If installed, gutter and valley leaf guards shall be non-combustible. (N/A)

Box gutters shall be non-combustible and flashed at the junction with the roof with non-combustible material. (BLP: gutters are made in colorbond metal sheet)

5.7 VERANDAS, DECKS, STEPS, RAMPS AND LANDINGS

5.7.1 General

A1 | Decking may be spaced. (N/A)

There is no requirement to enclose the subfloor spaces of verandas, decks, steps, ramps or landings.

C5.7.1 Spaced decking is nominally spaced at 3 mm (in accordance with standard industry practice); however, due to the nature of timber decking with seasonal changes in moisture content, that spacing may range from 0–5 mm during service. The preferred dimension for gaps is 3 mm (which is in line with other ‘permissible gaps’) in other parts of this Standard. It should be noted that recent research studies have shown that gaps at 5 mm spacing afford opportunity for embers to become lodged in between timbers, which may contribute to a fire. Larger gap spacings of 10 mm may preclude this from happening but such a spacing regime may not be practical for a timber deck.

5.7.2 Enclosed subfloor spaces of verandas, decks, steps, ramps and landings (N/A)

5.7.2.1 Materials to enclose a subfloor space

This Standard does not provide construction requirements for the materials used to enclose a subfloor space except where those materials are less than 400 mm from the ground.

Where the materials used to enclose a subfloor space are less than 400 mm from the ground, they shall comply with Clause 5.4.

5.7.2.2 Supports

This Standard does not provide construction requirements for support posts, columns, stumps, stringers, piers and poles.

5.7.2.3 Framing

This Standard does not provide construction requirements for the framing of verandas, decks, ramps or landings (i.e., bearers and joists).

A1 | **5.7.2.4 Decking, stair treads and the trafficable surfaces of ramps and landings**

This Standard does not provide construction requirements for decking, stair treads and the trafficable surfaces of ramps and landings that are more than 300 mm from a glazed element.

Decking, stair treads and the trafficable surfaces of ramps and landings less than 300 mm (measured horizontally at deck level) from glazed elements that are less than 400 mm (measured vertically) from the surface of the deck (see Figure D2, Appendix D) shall be made from—

- (a) non-combustible material; *or* (External stairs & ramps are made in concrete finish)
- (b) bushfire-resisting timber (see Appendix F); *or*
- A1 | (c) a timber species as specified in Paragraph E1, Appendix E; *or*
- A2 | (d) PVC-U; *or*
- (e) a combination of any of Items (a), (b), (c) or (d) above.

5.7.3 Unenclosed subfloor spaces of verandas, decks, steps, ramps and landings (N/A in Building E & K)

5.7.3.1 Supports

This Standard does not provide construction requirements for support posts, columns, stumps, stringers, piers and poles.

5.7.3.2 Framing

This Standard does not provide construction requirements for the framing of verandas, decks, ramps or landings (i.e., bearers and joists).

A1 | **5.7.3.3 Decking, stair treads and the trafficable surfaces of ramps and landings**

This Standard does not provide construction requirements for decking, stair treads and the trafficable surfaces of ramps and landings that are more than 300 mm from a glazed element.

Decking, stair treads and the trafficable surfaces of ramps and landings less than 300 mm (measured horizontally at deck level) from glazed elements that are less than 400 mm (measured vertically) from the surface of the deck (see Figure D2, Appendix D) shall be made from—

- (a) non-combustible material; *or*
- (b) bushfire-resisting timber (see Appendix F); *or*
- A1 | (c) a timber species as specified in Paragraph E1, Appendix E; *or*
- (d) a combination of any of Items (a), (b) or (c) above.

5.7.4 Balustrades, handrails or other barriers

This Standard does not provide construction requirements for balustrades, handrails and other barriers.

5.8 WATER AND GAS SUPPLY PIPES

Above-ground, exposed water and gas supply pipes shall be metal.

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