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Australia

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

August 2022
J176343-01

Hutchinson Builders
Green Square Public School

C123836 : ZZ

Document Control

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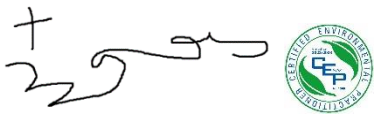
Signatures:	Drafted By:  Dr. Brad Zhao **Senior Environmental Consultant – Environment NSW**
	Authorised/ reviewed By:  Darren Cordy **Practice Manager – Environment**

Issue Status

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No of Copies	Type	Customer Name	Position & Company
1	Electronic	Amir Maglajlic	Contracts Administrator – Hutchinson Builders
1	Electronic	**John Koumoukelis**	Team Leader – Hutchinson Builders

Construction Environmental Management Plan

Hutchinson Builders

Green Square Public School (GSPS)

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Construction Environmental Management Plan

Hutchinson Builders

Green Square Integrated Community Facility and School

1 DOCUMENT CONTROL

Documentation and document control for this Construction Environmental Management Plan (CEMP), including issue of any amendments will be made in accordance with the Hutchinson Builders document control procedure.

Where subcontractors' environmental control measures are submitted to Hutchinson Builders, these will be treated as controlled documents.

The QS&E Manager in consultation with the Project Manager will arrange for environmental records to be filed as part of the project quality records.

This CEMP is maintained by Hutchinson Builders and kept up to date through regular reviews carried out initially three months from project commencement then six monthly as a minimum or as required to suit the phase of the project, after a significant change to the project risk/design risk assessment, a project audit, project, or legislation requirements. The review shall include any attachments or appendices referred to in this plan.

This review will be aimed at verifying the suitability and effectiveness of this CEMP in ensuring compliance with legislative, contractual and best practice requirements.

This CEMP shall also be reviewed if:

- There is a significant change in the project scope;
- There are significant and relevant changes in applicable legislation during the life of the project;
- Environmental impacts (associated with project activities) changed due to any other reason;
- Major omission or non-conformance identified by relevant regulatory agencies; and
- A major incident or emergency event has occurred on the project site.

A current copy of this plan shall be kept on site and made available to all employees and contractors involved in the project. Amendments that are made to this document are recorded on the register of amendments above and shall be approved by the QS&E Manager in consultation with the Project Manager and site management. Superseded versions of this document shall be maintained for a period of 7 years to demonstrate record of environmental management and compliance.

This document shall be created prior to commencement of the project and a controlled copy shall be supplied to all interested parties. Distribution of controlled copies shall be recorded on the distribution register above (controlled hardcopy only). When changes are made to this document, parties listed above shall be provided with updates.

General documentation relating to environmental management on site shall be controlled through use of issue dates and version numbering as applicable.

Construction Environmental Management Plan

Hutchinson Builders

Green Square Integrated Community Facility and School

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2 INTRODUCTION AND BACKGROUND

Greencap was engaged by Amir Maglajlic on behalf of Hutchinson Builders (the "client") to prepare a Construction Environmental Managemental Plan (CEMP) for development works at 3 Joynton Avenue, Zetland NSW (the site). The site is legally identified as Part Lot 2 in Deposited Plan (DP) 1174641 and has an area of approximately 4,983 m^2. The site location and layout are shown in **Figures 1** and **2**, respectively. Refer to the Figures section of this report for site location, site boundaries and proposed construction area.

Previous contamination investigation activities undertaken at the former RSSH site identified the presence of fill material underlying the site reported to be impacted with polycyclic aromatic hydrocarbon (PAH), heavy metals, total petroleum/recoverable hydrocarbons (TPH/TRH) and asbestos to varying degrees. Based on the review of existing site contamination data, a remedial action plan (RAP) was developed for the proposed GSICFS development as documented in JBS&G (2020). The RAP was reviewed and endorsed by an NSW Environment Protection Authority (EPA) accredited Site Auditor appointed for the project with an interim audit advice (IAA) issued by the Site Auditor (Ramboll 2020). City of Sydney (CoS) Council granted a conditional consent (D/2020/923/A) for the proposed remediation works as addressed by the RAP (JBS&G 2020) and IAA (Ramboll 2020) on 23 December 2020.

This Construction Environmental Management Plan (CEMP) meets the requirements of Notice of Determination – Approval D/2020/923 Mo Condition (14) issued on 23 December 2020 and its Modification D/2020/923/A issued on 14 July 2021, relating specifically to the preparation of a CEMP as copied below:.

(14) ENVIRONMENTAL MANAGEMENT PLAN

Prior to the commencement of any demolition and remedial works an Environmental Management Plan (EMP) must be prepared for the site and submitted to Council's Area Planning Manager for written approval prior to the commencement of work. The EMP must consider all potential environmental impacts from the approved works including but not limited to sedimentation control, contamination containment, stockpiles, noise and vibration, odours and dust emissions.

All works must be undertaken onsite in accordance with the approved Environmental Management Plan.

Greencap understands the site is located within a portion of the former Royal South Sydney Hospital (RSSH) site. The proposed redevelopment comprises the demolition of site structures associated with former RSSH (completed to date) and the construction of the proposed Green Square Integrated Community Facility and School (GSICFS).

An asbestos management plan (AMP) was prepared by Greencap (2022) for the site to identify the appropriate site management and personal protective equipment required for remediation of asbestos-containing materials (ACM) ref: *J176343 - Asbestos Management Plan - Greensquare Public School_V1*. The management requirements of the AMP for ACM work are also considered applicable for lead management on the site.

Based on the information provided by the client, Greencap understands that excavation and off-site disposal of contaminated fill and cut-and-fill activities will occur on the site. The proposal construction consists of a four storey building made up of various indoor and outdoor functional spaces including:

- Primary education facilities for up to 600 kindergarten to year 6 students
  - Indoor and outdoor learning spaces;
  - Administration and staff rooms; and
  - Library and School community hall.
- Shared multi function spaces within for school and community use
  - 2 x multipurpose community facilities rooms to be operated solely by City of Sydney; and

  - 2 x multipurpose rooms to e shared by the City of Sydney and the primary school
- At ground level there are
  - Play spaces which will be a shared use between school and community; and
  - Multipurpose games court.

This Construction Environmental Management Plan (CEMP) provides the system to manage and control environmental aspects of the project during pre-construction and construction. It identifies all requirements applicable to the activities outlined in Section 3 of this report. It also provides the overall framework for the system and procedures to ensure environmental impacts are minimised and legislative and other requirements are fulfilled.

This CEMP establishes the system for implementation, monitoring and continuous improvement to minimise impacts from the project on the environment.

This CEMP is consistent with:

- *AS/NZS ISO 14001:2016, Environmental Management Systems – Requirements with Guidance for Use*;
- Australian & New Zealand Environment & Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (2000) — *Australian and New Zealand guidelines for fresh and marine water quality.* National Water Quality Management Strategy (ANZECC / ARMCANZ, 2000).
- Australian Standard AS4482.1:2005 - Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil. Part 1: Non-volatile and Semi-volatile Compounds.
- Australian Standard AS4482.2:1998 - Guide to the Investigation and Sampling of Sites with Potentially Contaminated Soil. Part 2: Volatile Compounds.
- Department of Infrastructure, Planning and Natural Resources (2004) – *Guideline for the Preparation of Environmental Management Plans*.
- Landcom (2004) - *Managing Urban Stormwater: Soils and Construction - Volume 1*, 4th Edition (New South Wales Government).
- National Environment Protection Council (NEPC) – National Environment Protection (Assessment of Site Contamination) Measure 199 (as Amended 2013 (ASC NEPM, 2013).
- National Environmental Protection Council (NEPC) - National Environmental Protection (Ambient Air Quality) Measure 1998 (AAQ NEPM, 1998).
- National Water Quality Management Strategy (NWQMS) (2000) – *Australian Guidelines for Urban Stormwater Management*.
- NSW EPA (1995) – Sample Design Guidelines.
- NSW Agriculture (1998) - Acid Sulfate Soils Management Advisory Committee, Acid Sulfate Soils Manual (ASSMAC, 1998).
- NSW EPA (2014) – Waste Classification Guidelines.
- SafeWork Australia (2011) - Code of Practice: Work Health and Safety Consultant, Cooperation and Coordination.
- SafeWork NSW and WorkSafe Australia acts, regulations and factsheets.

2.1 Purpose of this CEMP

The primary objective is to prepare this CEMP for the client that will facilitate their compliance with CoS's Notice of Determination – Approval D/2020.923 Condition (14). Greencap has prepared this CEMP to document environmental management procedures that will mitigate potential harm to the environment and provide a structured approach to the management of environmental issues during the construction phases

of the project. Implementing this CEMP effectively will ensure that the project team meets regulatory and policy requirements in a systematic manner and continually improves its performance.

In particular, this CEMP and its sub-plans:

- Describes the project in detail including activities to be undertaken;
- Provides specific mitigation measures and controls that can be applied on-site to avoid or minimise negative environmental impacts;
- Provides specific mechanisms for compliance with applicable policies, approvals, licences, permits, consultation agreements and legislation;
- Describes the environmental management related roles and responsibilities of project personnel;
- States objectives and targets for issues that are important to the environmental performance of the project; and
- Outlines a monitoring regime to check the adequacy of controls as they are implemented during construction.

This CEMP meets the requirements of CoS Notice of Determination (NoD) – Approval D/2020/923 Condition (14), and Modification D/2020/923/A relating specifically to the preparation of a CEMP. The NoD and Modification requirements and where they are met in the CEMP are shown in the table below:

Table 1: Site Details		
No Item	Requirement	Reference
Condition 14	The CEMP must consider all potential environmental impacts from the approved works including but not limited to:	This Document
Condition 14	Sedimentation Control	Appendix E: Erosion and Sediment Management Plan
Condition 14	Contamination Containment	Appendix F: Contamination Containment Plan
Condition 14	Stockpiles	Appendix G: Soil and Water Management Plan
Condition 14	Noise and Vibration	Appendix I: Noise and Vibration Management Plan
Condition 14	Odours And Dust Emissions	Appendix J: Odours and Dust Control Plan
The CEMP shall also:		
i)	Comply with the NoD, conditions of any licences, permits or other approvals issued by government authorities for the project, all relevant legislation and regulations, and accepted best practice management	**Section 3**
ii)	Comply with the relevant requirements of *Guideline for Preparation of Environmental Management Plans* (Department of Infrastructure, Planning and Natural Resources, 2004)	This Document
iii)	Include an Environmental Policy	**Section 10**

2.2 Project Location

The site is located at the former RSSH of 3 Joynton Avenue, Zetland NSW. Specific details are provided in **Table 2** and site boundaries provided in **Figure 1** in Figures section of this report.

Table 2: Site Location and Details	
Item	**Details**
Lot/ Plan Number	Part Lot 2 in DP 1174641
Site Address	3 Joynton Avenue, Zetland NSW
Local Government Authority	The Council of the City of Sydney
Site Area	Proposed GSICFS: 4707 m^2 Proposed Childcare Centre Playground: 276 m^2
Current Land-use	Vacant development site
Former Land-use	Hospital use (former RSSH), community hall, rehabilitation services/hydrotherapy pool, council administrative use, children's playground
Proposed Land-use	Integrated community facility and primary school and childcare centre playground
Current Zoning	No. 5(a) (Special Uses Zone – Hospital) under the South Sydney Local Environmental Plan No 114, noting the site is a Deferred Matter under the Sydney Local Environmental Plan (Green Square Town Centre—Stage 2) 2013
Approximate MGA Coordinates of Centre of Site (MGA56, GDA 94)	E: 334175.072 N: 6246565.947

2.3 Project Description

The project consists of remediation of contaminated land and construct a four-storey building made up of various indoor and outdoor functional spaces. The project comprises the following key elements:

- Removal and disposal of petroleum infrastructure;
- Excavation and disposal of lead impacted soil at BH32 (if required)
- Excavation and off-site removal of fill materials
- Physical separation (capping) of retained fill materials strategy
- Validation of site after remediation work;
- Cut and fill activities to level the site;
- Construction of primary education facilities for up to 600 kindergartens to year 6 students:
- Construction of shared multi-function spaces within for school and community use;
- Development of play spaces which will be a shared use between school and community; and
- Development of multipurpose games court.

The project will provide a new school campus for children with special needs. It noted all the former buildings had been demolished. Following excavation and site-specific remediation activities, landscaping and construction of the new site buildings will be conducted.

2.4 Key Construction Activities and Staging

The key activities and anticipated staging for carrying out the works presented in **Section 2.3** of this CEMP are detailed in **Table 3.**

Table 3: Project Staging for Key Activities	
Stage of Works	**Activities**
Remediation of contamination (Stage 1)	• Excavation of materials to be removed from site (around the lead hotspot area); • Validation of UST ex-situ decommissioning; • On-site treatment (capping and containing) of asbestos-impacted soils; and • Validation of remaining site soils.
Site establishment and enabling works (Stage 1)	• Establish the site compound (erect fencing, tree protection zones, site offices, amenities and plant/material storage areas); • Establish temporary facilities as required (e.g. temporary pedestrian access to station, temporary toilets, etc.); • Remove vegetation to allow for earth works; • Installation of temporary roads for site vehicles; and • Services relocation.
Cut and fill (Stage 1)	• Cut and fill of site to design level following soil removal for remediation; and • Bulk earthworks and landscaping.
Construction of buildings (Stage 2)	• Detailed excavation following base compaction; • Deep and detailed excavation for footing and edge beams; • Installation of slab; and • Construction of buildings.
Finalisation	• Electrical and power supply upgrade works; and • Replanting/landscaping, fencing adjustments and bollards.
Testing and commissioning	• Various activities to test and commission power supply, lighting, new services, communication and security systems.

The plant and equipment likely to be required to undertake the above works include:

- **Trucks (tippers and semi-trailers)**
- **Demolition saw**
- **Generator**
- **Jack hammer**
- **Excavator (with auger)**
- **Grinder**
- **Bobcat**
- **Scissor lift**
- **Mobile/franna crane**
- **Hand tools**
- **Lighting tower**
- **Mulcher**
- **Chainsaw**
- **Concrete pump**
- **Concrete truck**
- **Hydreama and/or hirail**
- **Wacker packer**
- **Nail gun**
- **Mini excavator**
- **Grader**

The majority of works required to complete the project would be undertaken during standard NSW Environmental Protection Authority (NSW EPA) approved construction hours and Interim Construction Noise

Guideline, DECC 2009 and Condition (22) (a) (i.e. 07:30 to 17:30 Monday to Friday and 07:30 to 15:30 Saturdays). No work will be conducted on Sunday or public Holidays.

Certain activities may require out of hours works to take place (including night works and works during routine track possessions). Any out of hours works will require prior approval from the consent authority.

Instances where works will be required to be carried out outside of standard construction hours are expected to include:

- Emergency works to avoid the loss of life, damage to property or to prevent environmental harm and/or to avoid structural damage to the building.
- Works where noise levels are assessed as not being above noise management levels (NMLs).
- Works where NMLs are exceeded, however mitigation measures and relevant notification occurs.

2.5 Compound Facilities

Temporary compound facilities are required to support the construction of the project. The prime site compound will be established to the immediate north of the vehicle entrance gate off Joynton Avenue. A Preliminary Construction Pedestrian & Traffic Management Plan has been prepared by Traffix (2021) on behalf of NSW Department of Education (ref: 20.163r03v04), this will also be detailed in the final site-specific Traffic Management Plan to be provided in a later stage of this project.

This site will accommodate the majority of the project management and administrative personnel and will include:

- Office space;
- Staff amenities;
- Storage containers;
- Material and chemical storage; and
- Waste storage.

3 PLANNING REQUIREMENTS

This section of the CEMP provides a summary of the statutory planning context of the project including consideration of the relevant provisions of Part 5 of the NSW EP&A Act, the environmental planning instruments that apply to it as well as additional approval requirements.

Principal Contractor will ensure compliance with all relevant environmental legislation and contractual environmental requirements and aims to employ best practice environmental management procedures for the construction of the project.

3.1 Project Environmental Obligations

All construction personnel working on the project have the following general environmental related obligations:

- Minimise pollution of land, air and water;
- Preserve the natural and cultural heritage environment;
- Give notice to the Department of Education of a non-Indigenous or Indigenous heritage discovery;
- 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 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 CEMP and any sub-plans associated with this plan.

3.2 Environmental Legislation

A register and other requirements for the project is presented below in **Table 4**. This register will be reviewed by the principal contractor QS&E Manager and updated with any applicable changes. Any changes made to the legal requirements register will be communicated to all personnel working on or affiliated with the construction of the project where necessary through toolbox talks, specific training and other methods detailed in **Section 6** of this CEMP.

Table 4: Regulatory Compliance Requirements					
Regulatory Instrument	**Licence/Permit/ Approval/Guideline/ Plan**	**Responsible Regulatory Body**	**Responsibility for Ongoing Compliance Monitoring**	**Reporting Frequency/ Milestones**	**Report Content**
Environmental Planning and Assessment Act 1979	CEMP complying with Parts 4 and 5 of Act and Guidelines for the Preparation of Environmental Management Plans	Department of Planning	QS&E Manager	N/A	N/A
Heritage Act 1977	Potential impacts during construction are to be managed through the implementation of the CEMP.	Heritage Branch of Department of Planning	QS&E Manager	N/A	N/A
National Parks and Wildlife Act 1974	Project is located within the Darug Local Aboriginal Land Council area. No recorded Aboriginal sites are located on the site.	Office of Environment and Heritage	QS&E Manager	N/A	N/A
Biodiversity Conservation Act	Potential impacts to environmentally significant land are to be managed through the implementation of the CEMP.	Office of Environment and Heritage	QS&E Manager	As provided in the Biodiversity Management Plan (Appendix)	N/A
Soil Conservation Act 1938	N/A	Department of Water and Energy	QS&E Manager	N/A	N/A

Table 4: Regulatory Compliance Requirements					
Regulatory Instrument	**Licence/Permit/ Approval/Guideline/ Plan**	**Responsible Regulatory Body**	**Responsibility for Ongoing Compliance Monitoring**	**Reporting Frequency/ Milestones**	**Report Content**
Water Management Act 2000	N/A	Department of Water and Energy	QS&E Manager	N/A	N/A
Protection of the Environment Operations Act 1997	Hutchinson Builders is not obligated to hold an Environmental Protection Licence for the site or site activities but is responsible for the management and disposal of waste on the site.	Environment Protection Authority	QS&E Manager	All materials to be disposed off-site are to be removed under appropriate waste classification documentation to a suitably licenced facility	As per the NSW EPA (2014) *Waste Classification Guidelines*
Protection of the Environment Operations (Waste) Regulation 2008	Hutchinson Builders is not obligated to hold an Environmental Protection Licence for the site or site activities but is responsible for the management and disposal of waste on the site	Environment Protection Authority	QS&E Manager	All materials to be disposed off-site are to be removed under appropriate waste classification documentation to a suitably licenced facility	As per the NSW EPA (2014) *Waste Classification Guidelines*
Contaminated Land Management Act 1997	All site contamination is to be managed in accordance with the Act and associated guidance	Environment Protection Authority	QS&E Manager	Dependent on presence of contamination	As per *Guidelines for Consultants Reporting on Contaminated Site*
Work Health and Safety Act 2011	Preparation and adherence to project-	WorkCover NSW SafeWork	QS&E Manager	N/A	As per Code of Practice: How to Manage and

Table 4: Regulatory Compliance Requirements					
Regulatory Instrument	**Licence/Permit/ Approval/Guideline/ Plan**	**Responsible Regulatory Body**	**Responsibility for Ongoing Compliance Monitoring**	**Reporting Frequency/ Milestones**	**Report Content**
	specific asbestos management plan and Code of Practice: How to Manage and Control Asbestos in the Workplace				Control Asbestos in the Workplace
National Environmental Protection (Assessment of Site Contamination) Measure 1999 (2013 amendment)	Preparation and adherence to a site specific remediation action plan to remediate and validate the site for its intended use.	Environment Protection Authority	QS&E Manager	As per Section 107 of the CLM Act, all contaminated land investigations are to be undertaken as per the requirements of the NEPM	As per *Guidelines for Consultants Reporting on Contaminated Site*

3.3 Guidelines and Standards

It is Hutchison Builder's aim to employ best practice environmental management procedures for the implementation of the Project. Hutchinson Builders will also undertake the works in line with applicable components of the following guidelines and standards:

- AS/NZS ISO 14001:2004 "Environmental Management System";
- Managing Urban Stormwater - Soils and Construction (NSW Landcom, 2004 – The Blue Book);
- Waste Classification Guidelines (EPA, 2014);
- Guidelines for laying pipes and cables in watercourses on waterfront land (DPIE, 2012);
- Blue Gun High Forest of the Sydney Basin Bioregion (DAWE, 2014);
- Interim Construction Noise Guideline (DECCW, 2009);
- Assessment, Classification and Management of Liquid and Non Liquid Wastes (DECC, 1999);
- NSW Government's Industrial Noise Policy (INP) (NSW EPA, 2000);
- Storing and Handling Liquids: Environmental Protection – Participants Manual;
- NSW Rural Fire Service's guideline, Planning for Bush Fire Protection (2006);
- NSW Department of Urban Affairs and Planning & EPA – Managing Land Contamination Planning Guidelines – SEPP 55 Remediation of Land (1998);
- Australian & New Zealand Environment & Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand (2000) — *Australian and New Zealand guidelines for fresh and marine water quality*, National Water Quality Management Strategy (ANZECC / ARMCANZ, 2000);
- National Water Quality Management Strategy (NWQMS) (2000) – *Australian Guidelines for Urban Stormwater Management*;
- National Environment Protection Council (NEPC) (2013)– National Environment Protection (Assessment of Site Contamination) Amendment Measure No.1;
- NSW EPA (2020) – Consultants Reporting on Contaminated Land;
- WA Department of Health 2009 'Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia';
- Work Health and Safety Act 2011 NSW;
- Work Health and Safety Regulation 2011 NSW;
- WorkCover NSW 2014, 'Managing Asbestos in or on Soil';
- SafeWork NSW 2019a, Code of practice – 'How to manage and control asbestos in the workplace'; and
- SafeWork NSW 2019b, 'Code of practice - How to Safely Remove Asbestos'.

3.4 Conditions of the Planning Approval

The Council of The City Of Sydney is the consent authority for this project and the Conditions (14) listed in Notice of Determination (NoD) – Approval (D/2020/923) issued under Section 4.16(1)(a) of the Environmental Planning and Assessment Act 1979.

This CEMP has been prepared to comply with aspects of the NoD (D/2020/923) relevant to the management of environmental issues during site remediation and redevelopment works. Following approval of this CEMP the tracking of compliance will be undertaken under the internal and external auditing system discussed in Section 8 of this CEMP.

3.5 Environmental Policies

Hutchinson Builders policies are outlined at the time of induction for all employees and contract personnel and are displayed (as applicable) on all Hutchinson Builders notice boards in the Site Office and lunch areas. The Hutchinson Builders Environmental policy is included in Section 10 of this document.

4 RESPONSIBILITIES AND STAKEHOLDERS

Environmental responsibilities of key personnel are as set out in the following section, together with the nominated frequency of that specific responsibility. The Hutchinson Builders Construction Manager shall be accountable for the implementation of this CEMP and shall be assisted in daily activities by the Hutchinson Builders nominated Environmental Representative.

4.1 Contact Details

The following project personnel have the authority to implement a 'stop work' order immediately in order to prevent environmental impact from construction activities.

Table 5: Stop Work Contact Details		
Name	**Position**	**Contact**
John Koumoukelis	Team Leader	Mob: 0416 616 464
Michael Metherell	Site Manager	Mob: 0428 366 022
Amir Maglajlic	Contracts Administrator	Mob: 0447 517 852

The contact details for key project personnel with the responsibility to implement the CEMP and to respond to incidents and emergencies are detailed below. This CEMP will be amended as Hutchinson Builders staff are selected for site work.

Table 6: Key Project Personnel to Implement CEMP		
Name	**Position**	**Contact**
John Koumoukelis	Team Leader	Mob: 0416 616 464
Michael Metherell	Site Manager	Mob: 0428 366 022

Note: Project Manager details to be provided by the principal Contractor

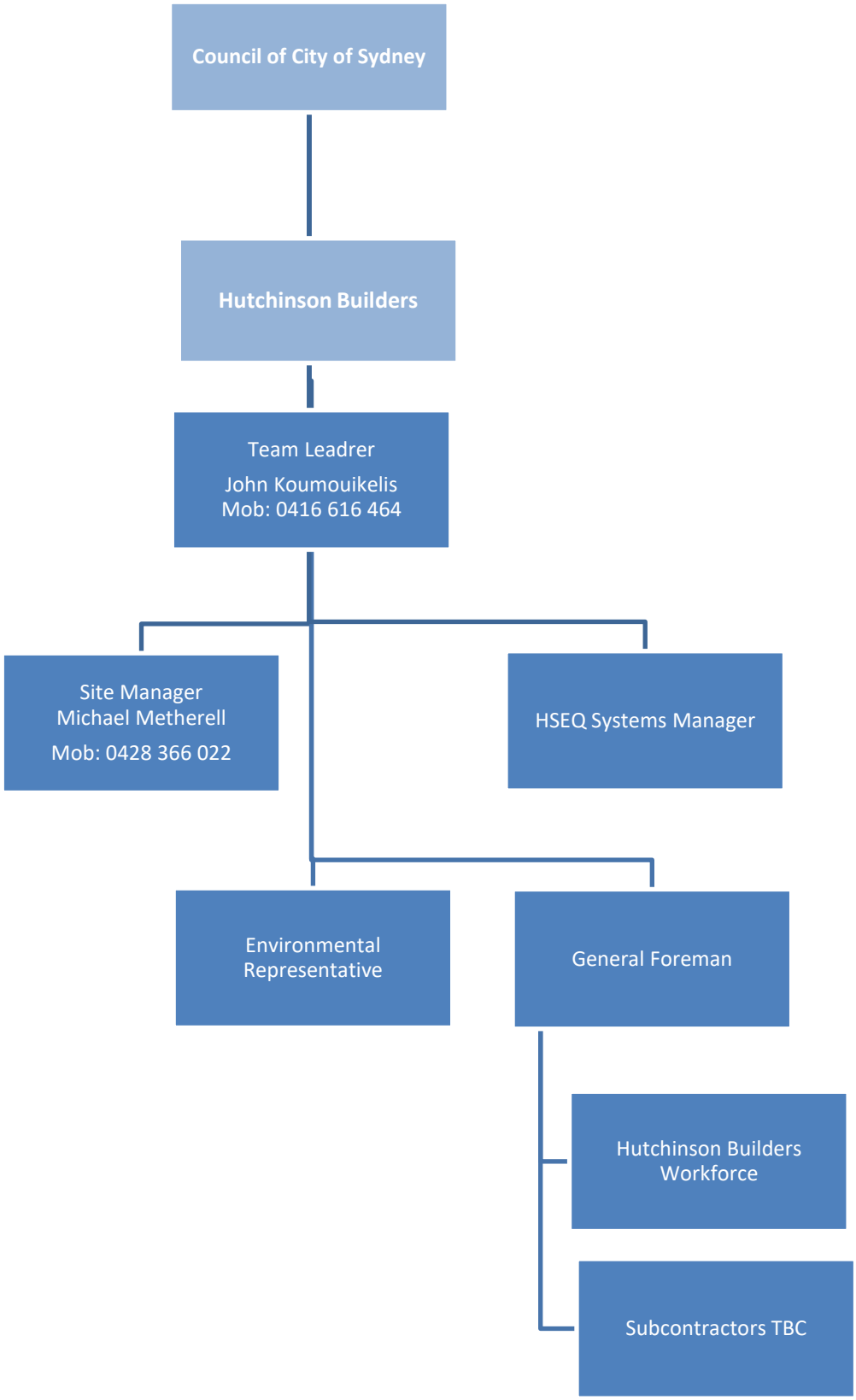


Figure 1: Organisational Structure of the Project

4.2 Hutchinson Builders

Hutchinson builders will conduct this project in such a manner as to:

- Ensure the construction workforce is aware of its responsibilities and personal liability with regard to protection of the environment,
- Undertake the project in such a manner as to minimise environmental impacts arising from construction,
- Bring to the operator's attention any aspect of the works that could cause environmental impact during operations; and
- Ensure the disposal of waste construction materials and spoil is conducted in an environmentally responsible manner.

Specific Environmental roles are included in Sections 4.2.1,4.2.2,4.2.3,4.2.4,4.2.5 and 4.3.2.

4.2.1 Hutchinson Builders Construction Manager/Team Leader

Table 7: Construction Manager Environmental Responsibilities	
Environmental Responsibilities	**Frequency**
Visible commitment to Environmental Practices and ensures compliance to environmental legislation, associated industry Codes of Practice and advisory data.	Continually
Visible commitment to Environmental Practices and ensure compliance to any client-mandated Environmental Rules, project-specific Notice of Determination, environmental legislation and addendums.	Continually
Responsible for site occupation and project delivery conformance to the CEMP including meeting all legislative requirements.	Continually
Attend client meetings (as Management Representative).	As nominated
Ensure that activities are assessed for environmental risk prior to commencement.	Continually
Selection of subcontractors, assessment of environmental plans and on-going monitoring to verify that they meet Hutchinson Builders and environmental requirements.	Continually
Conduct pre-start meetings with subcontractors.	Pre-mobilisation
Participation in the investigation of environmental incidents.	On occurrence
Provide appropriate resources to implement the processes defined in this CEMP.	Continually
Review and determine training requirements in conjunction with the HR Adviser.	As nominated
Review environmental incident statistical reports.	Monthly
Conduct Senior Leadership Workplace Visits to ensure the CEMP specific requirements are being monitored and implemented.	Monthly

4.2.2 Hutchinson Builders Project Manager

Table 8: Project Manager Environmental Responsibilities	
Environmental Responsibilities	**Frequency**
Facilitating environmental induction and training of all employees, Subcontractors, Suppliers and Consultants.	As required
Demonstrates commitment to Environmental Practices and ensure compliance with the environmental legislation, associated industry Codes of Practice and advisory data.	Continually
Visible commitment to Environmental Practices and ensure compliance to any client mandated Environmental Rules and other Standards.	Continually
Review and implement this CEMP.	As required
To ensure all approvals and license are obtained prior to any construction activity.	Pre-mobilisation
Ensure all employees undertake CEMP defined induction and training.	Continually
Ensure that foreseeable risks are identified, documented on Workplace Risk Assessments (or Aspects & Impacts Register) and controlled appropriately.	Pre-mobilisation
Ensure plant & equipment is only used by licensed and/or trained and competent operators and that records of the operator's qualifications are available.	Continually
Ensure that workforce understand and adhere to SWMS / JSEA's for assigned tasks.	Continually
Provide appropriate resources to implement the processes defined in this CEMP.	As required
Ensure appropriate amenities are provided for employees.	Continually
Notification of and participation in the investigation of environmental incidents.	On occurrence
Manage environmental incidents and rectification requirements including reporting in accordance with the Environmental Incident Management Plan (Appendix J).	On occurrence
Review and determine training requirements in conjunction with the HR Adviser.	As nominated
Selection of subcontractors, assessment of environmental plans and on-going monitoring to verify that they meet Hutchinson Builders requirements.	Continually
Ensure all plant and equipment is inspected upon arrival to site, prior to use and then re-inspected on a monthly basis to ensure plant and equipment is in good working condition to avoid spills, leaks, noise and air pollution.	As required
Conduct pre-start environmental alignment meetings with subcontractors.	Pre-mobilisation
Review environmental statistical reports.	Monthly
Collect environmental record data and distribute appropriately.	As defined
Participate in scheduled audits of the environmental plan.	As per Audit Schedule
Ensure safety/toolbox and pre-start meetings are conducted prior to works commencing.	Always
Ensure a register of Hazardous Materials is available on site and that a MSDS is available for each substance.	Always

4.2.3 Principal Contractor Project Supervisor

Table 9: Project Supervisor Environmental Responsibilities	
Environmental Responsibilities	**Frequency**
Demonstrated commitment to Environmental Practices and ensures compliance with environmental legislation, associated industry Codes of Practice and advisory data.	Continually
Ensure that foreseeable risks are identified, documented on Workplace Risk Assessments and controlled appropriately.	Pre-mobilisation
Notification of and participation in the investigation of environmental incidents.	On occurrence
Assist in environmental incident management and rehabilitation.	On occurrence
Review and determine training requirements in conjunction with the Project Manager and / or the Construction Manager.	As nominated
Ensure all plant and equipment is inspected upon arrival to site, prior to use & then re-inspected on a monthly basis to ensure plant and equipment is in good working condition to avoid spills, leaks, noise and air pollution.	As required
Collect environmental record data and distribute it appropriately.	As defined
Respond to environmental incidents and rehabilitation.	On occurrence
Participate in scheduled audits of the CEMP.	As per Audit Schedule
Co-ordinate SWMS / JSEA activities for their area of responsibility.	All works
Conduct Pre-start meetings.	Daily
Conduct Toolbox meetings, which includes management of environmental risk.	Weekly
Conduct formal / informal Workplace Hazard Inspections.	Monthly/Daily
Ensure a register of Hazardous Materials is available on site and that a MSDS is available for each substance.	Always
Be aware of Site Award conditions.	Ongoing

4.2.4 Environmental Representative

Table 10: Environmental Representative Environmental Responsibilities	
Environmental Responsibilities	**Frequency**
Demonstrated commitment to environmental procedures and instruction.	Continuously
Ensuring the system of environmental management is planned, documented, implemented and maintained in accordance with the requirements of this CEMP.	Continuously
Environmental Aspect and Impact identification.	Pre-Construction
Ensuring the details of this CEMP accurately reflect Hutchinson Builder's construction activities.	As Defined
Input to the formulation of the Environmental Work Method Statement (EWMS) (**Appendix C**).	As Requested
Attend pre-start and toolbox meetings.	At Random

Table 10: Environmental Representative Environmental Responsibilities	
Environmental Responsibilities	**Frequency**
To review and participate in environmental incident investigation and nominated corrective measures. Including the Unexpected Finds Protocol Specified in Appendix L: Unexpected Finds Protocol – Contamination	On Occurrence
Provide staff with training and inductions on environmental issues.	As Required
Ensuring compliance with the Planning Approval Documents.	Continually
Preparing and overseeing the implementation of the CEMP.	Continually
Undertaking Site inspections and audits and providing information on the results of the audits to Hutchison Builders.	Weekly and/or as deemed necessary by Hutchinson Builders

4.2.5 Design/Engineering Support

Table 11: Design/Engineer Support Responsibilities	
Environment Responsibilities	**Frequency**
Visible commitment to Environmental Practices.	Continuously
Review of Engineering and Design activities to ensure environmentally responsible design.	All Design
Formulation and participation – EWMS.	All Tasks
Notify the occurrence of all environmental incidents to the Environmental Representative.	All Incidents
Contribute to the overall project goal for zero environmental incidents by making suggestions for improvement where a better or more cost effective alternative can be identified.	Where Identified
Assist management in the implementation of Environmental Systems, including policies, procedures and requirements within this CEMP.	At All Times
Participate in any evacuation and emergency response procedure.	All

4.3 Traffic Controller

An authorised traffic controller will supervise the movement of all vehicles across the Joynton Avenue footpath during excavation and construction stages of the project.

Table 12: Traffic Controller	
Environment Responsibilities	**Frequency**
All trucks shall enter and exit the site and works zone/s in a forward direction and a certified traffic controller will be located at the access gate to supervise vehicle movements to/from Joynton Avenue.	All Tasks
Supervise the movement of all vehicles across the Joynton Avenue footpath during the demolition, excavation and construction stages of the project.	All Tasks

4.3.1 Hutchinson Builders Workforce

Table 13: Hutchinson Builders Environmental Responsibilities	
Environmental Responsibilities	**Frequency**
Visible commitment to Environmental procedures and instruction.	Continuously
Participate in project specific inductions which covers environmental and safety aspects for the project.	Prior to commencement of works
Actively participate in hazard identification.	Always
Participate in the development of task specific SWMS / JSEA.	Always
Adhere to defined task specific SWMS / JSEA controls.	Always
Attend Pre-start meetings.	As required
Attend Toolbox meetings.	Weekly
Notify the occurrence of all hazards and incidents to the Hutchinson Builders Project Supervisor / Project Manager.	All Incidents
Adhere to all environmental related instructions provided by supervision.	Always

4.3.2 Hutchinson Builders Subcontractors

Table 14: Hutchinson Builders Subcontractors Environmental Responsibilities	
Environmental Responsibilities	**Frequency**
Demonstrates commitment to Environmental Practices and ensure compliance to environmental legislation, associated industry Codes of Practice and advisory data.	Continuously
Participate in environmental performance reviews with Hutchinson Builders Project Management.	As nominated
Carry out environmental risk assessments for their scope of works.	All Works
Conduct formal and informal work place hazard inspections.	Daily
Participate in site induction as defined by CEMP.	As defined
Conduct Pre-start meetings.	As required
Attend toolbox meetings.	Weekly
Provide to Hutchinson Builders MSDS of all Hazardous Substances proposed for use.	All
Provide other environmental related data to Hutchinson Builders as defined by this CEMP.	As defined
Provide representation to all site meetings, when requested.	As nominated
Ensure all plant and equipment is inspected upon arrival to site, prior to use and then re-inspected on a monthly basis to ensure plant and equipment is in good working condition to avoid spills, leaks, noise and air pollution.	As required
Notify the occurrence of all hazards and incidents to the Hutchinson Builders Project Supervisor / Project Manager.	All Incidents

Table 14: Hutchinson Builders Subcontractors Environmental Responsibilities	
Environmental Responsibilities	**Frequency**
Immediately investigate all incidents and report back findings & close out actions.	All Incidents
Adhere to all environmental related instructions provided by Hutchinson Builders Management.	Always

5 COMMUNICATION AND CONSULTATION

5.1 General

The table below outlines the methods and schedule for specific environmental communication processes identified for Hutchinson Builders employees and subcontractors.

Table 15: General Environmental Communication			
Communication Process	**Schedule**	**Participants**	**Facilitator**
Client Inductions (General and Site)	On commencement	All	Department of Education
Hutchinson Builders Inductions which covers environmental and safety aspects for the project (General and Site)	On commencement	All	Hutchinson Builders Project Engineer
Toolbox Meeting	Weekly	All	Hutchinson Builders Project Supervisor
Client Environmental Meetings	As Required	Applicable Staff	Hutchinson Builders Project Supervisor
Client Progress Meeting	Monthly / As deemed necessary	Applicable Staff	Hutchinson Builders

5.2 Environmental Promotion

Environmental promotion and awareness for both Hutchinson Builders and subcontractor employees, begins during the induction process. Further promotion is achieved by:

- Continuous improvement feedback;
- Toolbox Meetings;
- Posters;
- Memorandums and Incident Reports;
- Notice Board;
- SWMS / JSEA / EWMS;
- Ongoing environmental checks done completed by the Environment Representative;
- Overall environmental audits conducted by the Environment Representative;
- Communicate audit findings to works team.

Note: Environmental alerts issued by Hutchinson Builders, the client or subcontractors shall be posted on the Safety Notice Board and in all prominent places and discussed at the next scheduled meeting or training awareness session.

5.3 Communication with Project Stakeholders

Communication during site works is critical to the safety and effectiveness of the work program. Pathways of communication include:

- Communication between site personnel, including CoS Representatives, Principal contractor personnel and their nominated subcontractors and subconsultants;
- Communication between the Principal contractor Site Manager and Project Manager, and relevant stakeholders, including the Site Auditor and regulatory agencies;
- Communication between the Site Manager and all site personnel via tool box and tailgate meetings. This communication will establish the operational and environmental conditions for the day (toolbox), and for the following planned day ahead (tailgate) and identify the environmental controls and restrictions on work tasks to mitigate environmental impacts. For example, restrictions on concrete crushing plant operating times to minimise dust generation during forecast strong wind conditions. Toolbox and tailgate meetings will be documented in field notes for the project;
- The Site Manager will report to the Project Manager information that encompasses all parameters required for the continued compliance to the CEMP. Communication will be via telephone or email, as the circumstances require; and

Hutchinson Builders will continuously liaise with CoS representatives as set out in Figure 1, Section 4.1 above, regarding project status, upcoming works and community liaison.

5.4 Consultation with Regulatory Authorities

Where required consultation with regulatory authorities will be undertaken by Hutchinson Builders in conjunction with the Environmental Representative to address any licence, approval or permit requirements prior to construction of the Project. Typical approvals which may be required during the construction of the Project include:

- Road Occupancy Licence (ROL);
- Works out side of normal construction hours;
- Temporary occupation of land for the purposes of construction activities; and
- Dewatering / discharge to sewer.

5.5 Community Consultation

Currently School Infrastructure NSW (SINSW) has a comprehensive community engagement strategy in place for construction. Please refer to the strategy for further details regarding the community strategy.

Table 16 below provides the primary tools and techniques to keep stakeholders and local community involved and informed.

Table 16: Community Consultation Channels

Channel	Purpose	Frequency	Responsibility
Advertising	Advertising in local newspapers is undertaken at least seven days	At project milestones.	SINSW & CoS

Table 16: Community Consultation Channels			
Channel	**Purpose**	**Frequency**	**Responsibility**
	prior to significant construction activities.		
Community Contact Cards	Project team/contractors (including Hutchinson builders) are to hand out cards to stakeholder and community members enquiring about the project.	Available during the life of the project and for 12 months after construction has been completed.	SINSW & CoS
Door Knocks &/or Letter Drops	Provide timely notification to nearby residents of upcoming construction works, changes to pedestrian movements, temporary bust stops, expected impacts and proposed mitigation.	As required.	SINSW & CoS
Information Booths	Information booths staffed by a project team will be held to answer questions, concerns or complaints of the project. Booths will be held within the school to align with parents arriving at the school and at local shopping/community areas during out of work hours and Saturdays.	As project milestones/as required.	SINSW & CoS
Information Sessions	Information sessions where information is presented on boards and screens and information packs are provided including project scope, planning approval, project timelines and FAQs.	As required.	SINSW & CoS
Project Signage	Aluminium signage with high level project information are fixed to external fencing and entrances of the site.	During the life of the project and for 12 months after construction has been completed.	SINSW & CoS

5.6 Complaints Handling

The CoS has comprehensive management strategies for complaint management and handling[1]. Complaints during construction include issues regarding:

- Safety;
- Dust;
- Noise;

[1] https://www.cityofsydney.nsw.gov.au/council-governance-administration/complaints-feedback-procedures

- Traffic congestion;
- Loss of parking;
- Contamination;
- Hours of work;
- Property damage;
- Property access;
- Service disruption;
- Conduct of behavior of construction workers; and
- Unplanned or uncommunicated disruption to the sensitive receptors within the adjacent childcare center.

A complaint register is to be kept on-site for phone calls and face-to-face complaints made to Hutchinson Builders, following notification of the event to CoS.

The complaints register is to include:

- The name and address of the complainant;
- The time and date the complaint was received;
- The description of the complaint;
- The activity/ies and any associated equipment that gave rise to the complaint;
- The action that was taken to resolve the issue that led to the complaint; and
- The date the complaint was resolved and documentation of the complainant's level of satisfaction with the actions to resolve the issue.

For any complaints regarding environmental nuisances (particularly noise and dust) and the actions undertaken to resolve the complaint, and any non-conformances with eh CEMP that results in environmental nuisance.

6 TRAINING AND AWARENESS

Environmental awareness training will be provided to all Hutchinson Builders personnel involved with the project through the project induction process in order to ensure awareness of project environmental requirements and commitments. The environmental component of the induction may be tailored for each group to ensure that specific components of work and associated environmental risks are adequately covered.

This form of environmental awareness training will be directed at ensuring that all personnel is aware of:

- Their responsibility to conform to Hutchinson Builders and the client's environmental policies and procedures and the requirements of the CEMP;
- The significant environmental aspects of the project works in general;
- Risks associated with specific high environmental impact works;
- The environmental benefits of improved work performance;
- The roles and environmental responsibilities for achieving conformance with environmental policy and procedures and with the CEMP including site emergency preparedness and response requirements, as well as environmental controls measures;
- EPA and City of Sydney Council site inspections; and
- Individual and company consequences of departure from specified operating procedures.

The competency of those personnel performing tasks, which can cause significant environmental impact, may be assessed on the basis of experience, training and/or education.

6.1 Induction Process

The induction process for all employees and sub-contractors will include environmental awareness, and cover:

- An overview of the requirements of this CEMP and any previous revisions;
- An overview of site-specific environmental risks and control measures;
- The roles and responsibilities for managing environmental aspects of the works;
- Specific awareness training appropriate to site personnel assigned activities:
  - Contaminated soils on site (if any);
  - Dust management;
  - Water management;
  - Waste management;
  - Asbestos awareness;
  - Specific noise mitigation measures required for the site;
  - Location and identification of the construction corridor and no-go zones
- Provisions for all personnel on site to receive any additional environmental awareness training necessary to achieve a level of awareness and competence including training in any applicable EWMS and training in the CEMP; and
- Procedure for environmental emergency response and incident notification and management.

The Hutchinson Builders Project Manager shall ensure employee inductions are performed. Records shall be maintained in accordance with the site Quality Records procedures.

7 MANAGING THE IDENTIFIED ENVIRONMENTAL ISSUES

7.1 Environmental Aspects

The projects' environmental aspects are those activities that interact with the environment and may lead to impacts or larger scale change. The construction of the project will involve the following environmental aspects:

- Excavation and general soil disturbance;
- Material stockpiling;
- Erosion and sediment management;
- Noise level management;
- Surface and groundwater management;
- Dust control and management;
- Chemicals and fuel use;
- Procurement of materials;
- Placement and use of onsite amenities; and
- Construction traffic, plant movement and road occupancy.

7.2 Environmental Impacts

Environmental impacts are changes to the environment caused by environmental activities. These changes can be both positive and negative. The construction of the project will or has the potential to have the following environmental impacts:

- Soil erosion, sedimentation and water quality;
- Impacts on ecosystems and native vegetation;
- Impact on watercourses;
- Noise emissions;
- Waste generation and resource use;
- Air emissions and dust generation;
- Traffic congestion, delays and access restriction;
- Visual amenity impacts; and
- Community impacts.

7.3 Environmental Risk Assessment

The ongoing determination of environmental aspects and impacts will be achieved through the risk management process. This will result in the development of a list of environmental aspects and impacts, a corresponding mitigation strategy, and risk ranking for each activity.

Each environmental risk is categorised, based on the following:

- The environmental aspect;
- Type of potential impact;
- Relative scale of the potential impact consequence; and
- Likelihood of occurrence.

A matrix presenting a risk consequence ranking based on the likelihood and relative scale of potential impact is provided below. The aspects and impacts assessment, and summary mitigation measures for this project summarised in **Appendix D** provide additional detail for environmental protection procedures.

7.3.1 Risk Consequence Ranking

		CONSEQUENCE				
		Catastrophic	Major	Moderate	Minor	Insignificant
LIKELIHOOD	Almost certain	25	20	15	10	5
	Likely	20	16	12	8	4
	Possible	15	12	9	6	3
	Unlikely	10	8	6	4	2
	Rare	5	4	3	2	1

Consequence	Level of Environmental Impact
Catastrophic	Major impact to site or surrounds – immediate and/or long term harm, high risk of adverse publicity
Major	Offsite impact – OEH reportable incident
Moderate	Significant localised impact – OEH reportable
Minor	Minor level of impact – Localised, contained but required remedial work
Insignificant	Zero impact, minor inconvenience to workers or community
Likelihood	**Frequency of Event Occurring**
Almost certain	Very common or occurs frequently
Likely	Occur on occasions
Possible	Could occur
Unlikely	Not likely to occur
Rare	Practically impossible
Risk Rating	**Action to Be Taken**
Extreme	Do not commence work – assess situation and put in place significant measures to reduce the risk to a lower level.
High	Prepare robust WMS with the workers and evaluate if the work could be undertaken in an alternative manner. Ensure all staff understand and abide by the WMS
Medium	Ensure WMS has been prepared and is understood by all participating workers and that works are carried out in accordance with it.
Low	Supervisor to review and discuss at start-up

7.4 Environmental Control Measures

The control measures that will be implemented to mitigate the risk of environmental impact from the project works are detailed in the environmental risk assessment in Appendix D.

In addition to these measures, the following procedure and plans have been developed to assist in managing the project environmental aspects:

- Site Establishment Plan (Appendix A);
- Environmental Checklist (Appendix B);
- Environmental Work Method Statement (Appendix C);
- Environmental Risk Assessment (Appendix D);
- Erosion and Sedimentation Control Management Plan (Appendix E);
- Contamination containment Plan (Appendix F)
- Soil and Water Contamination Plan (Appendix G);
- Construction Waste Management Plan (Appendix H);
- Noise and Vibration Management Plan(Appendix I);
- Odours and Dust Control Plan (Appendix J)
- Environmental Incident Response Plan (Appendix K);
- Unexpected Finds Protocol - Contamination (Appendix L);
- Engineering Control Fact Sheets (Appendix M);

8 ENVIRONMETNAL MONITORING AND REVIEW

8.1 Site Inspection

The Site Inspection Checklist, (integrated into the Hutchinson Builders Big 10) provided in Appendix B, will be used to record the results of planned inspections, after rain and as environmental conditions change by the Project Manager, Environmental Representative or others.

8.2 CEMP Audit

The implementation of this CEMP will be audited throughout the construction stage. An environmental audit will be undertaken by a representative in lieu of the nominated Environmental Representative every six months or as required (e.g. following a significant environmental non-conformance).

8.3 Non Conformance and Corrective Action

Where the detection of any environmental impact exceeds specified limits, the auditor will investigate the incident to determine the extent of possible non-conformance. The non-conformance will then be corrected as soon as possible with necessary action taken to prevent recurrence. The auditor will document the nature and date of corrective action.

8.4 Records

The following records will be kept to demonstrate environmental due diligence and compliance with the CEMP:

- Licences, permits as relevant;
- Incident reports;
- Council correspondence;

- Site inductions;
- Inspections;
- Environmental audits;
- Non-conformance and evidence of corrective actions;
- Complaints register;
- Environmental incidents and rectification actions taken;
- Waste dockets;
- Plant and equipment registers and daily checks;
- MSDSs and chemical registers; and
- Training and induction registers.

8.5 CEMP Review

Hutchinson Builders will conduct a formal review of this CEMP at a minimum of six monthly intervals or a lesser frequency if required by other factors such as the results of audit reports, complaints, incidents or changes in site conditions or scope of works. Reviews will be carried out by consulting documents such as:

- Subcontractor documentation;
- Work method statements;
- Incident reports;
- Complaint registers;
- Variation orders to scope of works;
- Completed inspections; and
- Test plans as appropriate.

Changes to the CEMP will be recorded and issued as per the document control at the start of this CEMP. The review will adequately address all sections of the CEMP and action them appropriately.

8.6 Continual Improvement

Continual improvement of the CEMP is achieved by continually evaluating environmental management performance against the environmental policies, objectives and targets as outlined within this document, for the purpose of identifying opportunities for improvement.

The continual improvement process for the scheme will:

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

Implementation of strategies/techniques to improve the environmental performance of the environmental management system is the responsibility of the Environmental Representative (Section 4.1). Actions and further opportunities for continual improvement will be discussed at periodic Management Review meetings.

8.7 Environmental Training

The Principal Contractor and construction team personnel should be trained in a variety of procedures before commencing work at the site. Training to consider might include, but not limited, safety for team members, the community, and the environment. Training should be undertaken in the form of an over-arching site induction and at daily toolbox talks. The following training is recommended to be undertaken at a minimum, with all records maintained:

- Identification of potential construction hazards to the environment and public / private amenity;
- Identification of ecological impact from the discharge of sediment-laden waters;
- Identification of potential health considerations of dust generation; and
- Environmental management roles and responsibilities.

9 ENVIRONMENTAL INCIDENT RESPONSE

The point of contact for emergencies for construction and/or of an environmental nature during construction works is Principal Contractor. An environmental incident is defined in the POEO Act (1997) as a "pollution incident" where actual or potential harm to the health or safety of human beings or to ecosystems has occurred. An incident is also defined as resulting in actual or potential loss or property damage exceeding $10,000. Hutchinson Builders are required to notify EPA of any incident that occurs during the project.

Hutchinson Builders has established procedures to respond to environmental incidents. These procedures have been designed to prevent and mitigate the environmental impacts related to such events.

Environmental incidents may include but are not limited to:

- Oil, fuel or other contaminant or chemical spills;
- Flooding;
- Major equipment failure resulting in an environmental impact;
- Industrial accidents resulting in an environmental impact;
- Unauthorised clearing of vegetation;
- Damage to fauna; and
- Pollution of a waterway.

Prior to the commencement of a task involving hazardous materials, the work group shall be instructed on the potential risk and required work methods documented in the EWMS.

The steps defined in an incident response must encompass these defensive principles in the following order:

- Preservation of human health and safety;
- Protection of plant and property; and
- Protection of the environment.

Environmental Incidents will be managed in accordance with the Environmental Incident Response Plan in **Appendix K** of this CEMP.

9.1 External Emergency Contacts

Table 17: External Emergency Contacts		
Issue	**Contact**	**Number**
Life threatening emergencies Spills involving Mercury (call HAZMAT)	Fire Brigade (including HAZMAT), Ambulance or Police	000
Complaints	City of Sydney Council	(02) 9265 9333
Pollution incidents	EPA	131 555 or 02 9995 5000 (24 hours)
	Ministry of Health	9391 9000
	SafeWork NSW	13 10 50
	City of Sydney Council	(02) 9265 9333
Electricity Supplier (NSW) Loss of supply, fallen wires, or other electrical emergency	TransGrid Endeavour Energy	1800 027 253 131 003
Discovery of Aboriginal heritage items	OEH Aboriginal heritage division.	02 9873 5800
Discovery of Non-Indigenous heritage items	Heritage Council	02 9873 5800
Discovery of human skeletal remains	NSW Police	000
Water and sewer mains	Sydney Water	13 20 90 (24 hours)
Injured animals	WIRES – Sydney	02 8977 3333

9.2 Incident/ Complaints Handling

An incident / complaint register is to be kept on site for phone calls face-to-face complaints made to the principal contractor. The complaints register is to include:

- The name and address of the complainant;
- The time and date the complaint was received;
- The description of the complaint;
- The activity/ies and any associated equipment that gave rise to the complaint;
- The action that was taken to resolve the issue that led to the complaint; and
- The date the complaint was resolved and documentation of the complainant's level of satisfaction with the actions to resolve the issue.

SINSW and CoS will be notified within 24 hours after the receipt of a complaint regarding environmental nuisances or an environmental incident. After such notification, a plan will be submitted detailing the actions to be undertaken to resolve the complaint or any non-conformances with the CEMP that resulted in the environmental nuisance.

Note: Some incidents may require duty to report contamination to NSW EPA under *Contaminated Land Management Act 1997*. Therefore, incidents regarding the following items need to be communicated to a

suitably qualified Environmental Consultant (within 24 hours) and their advice shall be sought (within 14 days):

- On or off-site soil contamination;
- Foreseeable contamination of neighbouring land;
- Asbestos in or on soil;
- Groundwater or surface water;
- Vapour intrusion; and
- Other contaminants.

10 ENVIRONMETNAL POLICY

HUTCHINSON BUILDERS
Established 1912

POLICY

Environmental

Hutchinson Builders operates within the construction industry and is committed to the delivery of construction activities through environmentally responsible practices from inception to completion.

The leadership team is committed to the prevention of pollution, and recognises that the company's role in the protection of the environment, to the extent to which we can control it, is the cornerstone of our success.

The leadership team demonstrates this commitment by:

- Considering the needs and expectations of interested parties, and complying with all relevant statutory duties, codes, standards, contractual requirements
- Establishing environmental objectives in alignment with strategic direction, project risk, and industry best practice
- Understanding the exposure to environmental risk at each phase of a project, and implementing processes and procedures to identify, prevent, and mitigate undesirable environmental impacts
- Applying the appropriate evaluation techniques for enhancing continual improvement, with the benefit of learnings from historical challenges

This Environmental Policy will be communicated to all persons working on behalf of Hutchinson Builders to provide an understanding of the environmental objectives of the business.

Greig Quinn
Managing Director

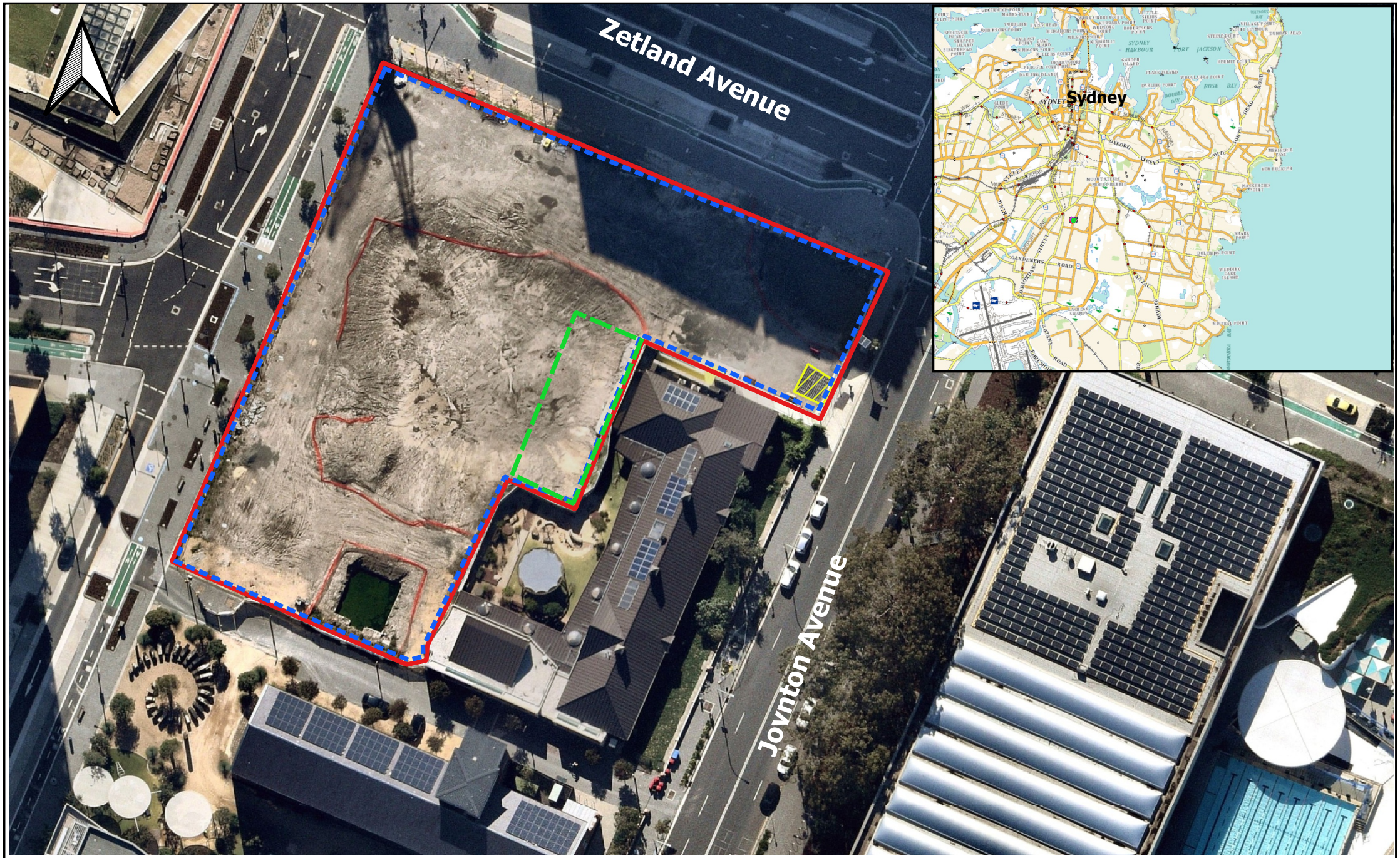
Date 1 March 2019
Version 6
Document HB-CO-Policy-0002-Environmental-06

Construction Environmental Management Plan

Hutchinson Builders

GSPS

Figures



Legend

- Proposed Childcare Centre Playground Boundary
- Proposed Green Square Public School Footprint
- Main Site Entry/ Exit: Shaker Grid
- Silt Fencing (Erosion& Sediment Controls)

0 10 20 m

GREENCAP
Going Further in Managing Risk

Title: Site Features

Client: Hutchinson Builders

Location: 3 Joynton Avenue, Zetland NSW

Project Manager: ZZ	Scale: As Shown	Job No: J176343
Reviewed by: MB	Date: July 2022	

Figure 1

Construction Environmental Management Plan

Hutchinson Builders

GSPS

APPENDIX A: SITE ESTABLISHMENT

1. PURPOSE

To address the requirements of the Development Consent in reference to Site Establishment for construction of the Green Square Integrated Community Facility and School at the 3 Joynton Avenue, Zetland NSW (the site).

2. SCOPE

Applies to all Hutchinson Builders work-related activities, workplaces, employees, contractors, subcontractors and visitors associated with the Project.

3. PROCEDURE

This Site Establishment Plan details how Hutchinson Builders will undertake works associated with the project in accordance with the CEMP.

3.1 Site Establishment Plan

The establishment of the site will involve the following:

- Dilapidation survey.
- Delineation of the construction corridor and vegetation to be removed or retained.
- Establishing the construction compound and works areas.
- Designating laydown areas for stockpiling equipment, materials and spoil.
- Installing erosion and sediment control measures.
- Implementing traffic management measures.
- Construction of access tracks.
- Construction of a dewatering system.

3.1.1 Dilapidation Survey

Prior to site establishment a dilapidation survey is required to be carried out by a qualified and suitable contractor for the following:

- Road way entry points to the site;
- Structures maintained throughout the proposal foot print; and
- Road ways/access ways within the site i.e along access ways that fall outside of the proposal footprint.

The dilapidation survey will be used for information during the rehabilitation process of the site, post construction, in order to reduce long term impact on the surrounding environment.

3.1.2 Delineation of the Construction Corridor

The clear delineation of the approved construction corridor is to be performed using high visibility para-webbing or tape. No-Go zones are to be established anywhere outside of the clearly demarked construction corridor. No-Go zones associated with stockpiling areas and storage of materials is to be clearly fenced and signposted.

Prior to the commencement of clearing works the following is to be conducted:

- Weeds to be removed for the works to be clearly marked.

3.1.3 Construction Compound

The temporary construction compound, located to the north of the vehicle entrance gate off Joynton Avenue, is to be securely fenced and signposted clearly indicating the site is a construction zone and access is restricted.

Locations of any additional storage compounds and site offices are to be confirmed during construction planning and subject to additional environmental assessment.

Pre and post contamination assessments are to be carried out by a suitably qualified contractor to validate the activities undertaken by Hutchinson Builders has not degraded the site.

After use, each area is to be restored as close as possible to original condition.

3.1.4 Designated Laydown Areas

Designated laydown areas within the construction compound for stockpiling equipment, materials and spoil are to be established with the correct sediment control measures in place.

Establish temporary laydown areas within the construction zone for small stockpiles of materials likely associated with stabilisation works. Temporary laydown areas require appropriate sediment controls.

3.1.5 Installing Erosion and Sediment Controls

The erosion and sediment controls are to be designed, installed and maintained may include the use of geofabrics, sediment floatation booms, sediment fences, and bunding. Refer to Appendix E of the CEMP (this document) for the Erosion and Sediment Management Plan.

3.1.6 Implementing Traffic Management

Traffic management measures will be implemented in accordance with the Construction Traffic Management Plan. The CTMP prepared in accordance with Council's requirements, located at – http://www.cityofsydney.nsw.gov.au/business/business-responsibilities/traffic-management/construction-traffic-management-plans

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APPENDIX B: ENVIRONMENTAL CHECKLIST

APPENDIX B – Environmental Checklist

Reviewer:	Job Number:
Date and Time:	Weather (rainfall in the last 24 hrs):
Environmental Management System Auditor signoff:	
Outcome = Complying/Not Complying or Yes/No	
Auditor Comments:	

Aspect category	Potential Impact	Mitigation Measures to be checked	Outcome	Comments
Topography	Non approved disturbances to terrain and changes to topographical features from construction methods.	Construction occurring within designated corridor.		
		Access routes in good condition with appropriate sediment control as per ER&SEDMP Appendix E.		
Soils	Erosion of exposed soils and stockpiled material. Disturbed sediments mobilising to waterways. Removal of topsoil will increase the potential for sediment erosion. Stockpiling activities on site.	Stockpiles of soils covered or bunded and managed in an appropriate manner to prevent dust, erosion and sediment runoff.		
		Contamination by way of chemical/fuel spills identified in spoil material or exposed soil.		
		Any contaminated spoil identified to be segregated. (Waste management procedures are outlined as part of the CWMP - Appendix H).		
		Sediment fencing in place for all soil stockpiles on site.		
		Less than 1/3 sediment build up in sediment traps.		
		Stormwater grates and drainage lines protected and free of soil.		
Surface Water Quality	Trenching of watercourses could result in soil erosion and	Watercourse crossings trenched perpendicular to the normal flow of the watercourse.		

Aspect category	Potential Impact	Mitigation Measures to be checked	Outcome	Comments
	sedimentation at construction sites. Increased suspended sediment loads downstream of construction site.	No refuelling, fuel decanting or vehicle maintenance taking place within proximity of waterways.		
		Refuelling taking place in designated areas - bunded and/or hardstand areas.		
		Contamination by way of chemical/fuel spills identified in surface water.		
	Pollution of waterways by fuel or chemicals and wastewater. Loss of water quality during wet weather overflows.	Toilets located away from sensitive areas.		
		No work occurring during wet weather.		
		Fuel and chemical stored in secure areas.		
		Emergency Spill Kit on site.		
		Plant and equipment leak free and stored in designated compound areas.		
Flooding	Localised flooding may occur in certain locations due to heavy wet weather events. Flooding could result in soil erosion and sedimentation at construction sites. .	Flooding Sediment controls installed to manage sediment and erosion issues (ER&SED Appendix E).		
		Work site stabilised after rainfall		
Vegetation and Weeds	Spread of noxious weeds.	Weeds removed from work areas, weed infestation areas clearly marked		

Aspect category	Potential Impact	Mitigation Measures to be checked	Outcome	Comments
		All plant, equipment and vehicles free of soil and vegetation prior to leaving the immediate site		
	Damage to vegetation.	No unapproved vegetation clearance		
		Vegetation fenced off in proximity to working areas		
		Tree protection zones fencing are maintained and mulch remains an appropriate depth.		
Rehabilitation	Soil and water impacts. Landscape impacts.	Stockpiles, storage and depot sites within allocated areas avoiding areas of native vegetation		
Construction traffic and noise	Increased traffic in residential areas. Reduced safety for pedestrians and cyclists in residential areas. Increased noise associated with increased traffic.	Vehicles observed on site adhering to onsite Construction traffic management plan (CTMP)		
		Plant and equipment working to approved hours		
		Noise not causing disruption to nearby residence		
		Vehicle speed limit 10km/h		
		Pedestrian detours in place		
		Sufficient identification / barriers for vehicle movement zones		
		Access for emergency services maintained		

Aspect category	Potential Impact	Mitigation Measures to be checked	Outcome	Comments
Waste Generation	Soil and water impacts. Landscape impacts. Contamination.	Receptacles on site for disposal of waste		
		Waste of same classification securely stored together		
Other	Any other environmental impacts observed on site.			
Carry over issues from previous inspections	Have previously identified potential impacts been mitigated/ addressed?			

Construction Environmental Management Plan

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APPENDIX C: ENVIRONMENTAL WORK METHOD STATEMENT

1. PURPOSE

This Environmental Work Statement Method (EWSMS) aims to ensure the local environmental conditions at the site are protected during the construction of the Green Square Integrated Community Facility and School at 3 Joynton Avenue, Zetland NSW (the site).

2. SCOPE

Applies to construction-related activities, workplaces, employees, contractors, subcontractors and visitors associated with the project.

3. PROCEDURE

This Environmental Work Method Statement details how Hutchinson Builders will undertake works associated with the project in accordance with Local Council (CoS) and Road and Maritime Authority requirements.

3.1 Site Location

Figure 2 of the figures section of the CEMP indicates the construction area at the Green Square Integrated Community Facility and School.

3.2 Contact Numbers

The following project personnel have the authority to implement a 'stop work' order immediately in order to prevent environmental impact from construction activities.

Table 1: Stop Work Contact Details		
Name	**Position**	**Contact**
John Koumoukelis	Team Leader	Mob: 0416 616 464
Michael Metherell	Site Manager	Mob: 0428 366 022

The contact details for key project personnel with the responsibility to implement the CEMP and to respond to incidents and emergencies are detailed below.

Table 2: Key Project Personnel to Implement CEMP		
Name	**Position**	**Contact**
John Koumoukelis	Team Leader	Mob: 0416 616 464
Michael Metherell	Site Manager	Mob: 0428 366 022
TBC	Project Manager	TBC

Table 3: External Emergency Contacts		
Issue	**Contact**	**Number**
Life threatening emergencies Spills involving Mercury (call HAZMAT)	Fire Brigade (including HAZMAT), Ambulance or Police	000

Table 3: External Emergency Contacts		
Issue	**Contact**	**Number**
Complaints	City of Sydney Council	(02) 9265 9333
Pollution incidents	EPA	131 555 or 02 9995 5000 (24 hours)
	Ministry of Health	(02) 9391 9000
	SafeWork NSW	13 10 50
	City of Sydney Council	(02) 9265 9333
Electricity Supplier (NSW) Loss of supply, fallen wires, or other electrical emergency	TransGrid Endeavour Energy	1800 027 253 131 003
Discovery of Aboriginal heritage items	OEH Aboriginal heritage division.	02 9873 5800
Discovery of Non-Indigenous heritage items	Heritage Council	02 9873 5800
Discovery of human skeletal remains	NSW Police	000
Water and sewer mains	Sydney Water	13 20 90 (24 hours)
Injured animals	WIRES – Sydney	02 8977 3333

3.3 Methodology

The following procedure will be applied when conducting Environmental Works across the site.

3.3.1 Pre-Task Planning

Pre-task planning shall be based upon site activities at the time of the investigation and prevailing weather conditions. The following will be considered in planning the works program:

- Access to sites shall be confirmed with Hutchinson Builders;
- All new staff to the site must receive a formal site induction from Hutchinson Builders;
- Site inspections are to be conducted by qualified personnel, who will ensure that any damage to the environmental conditions at the site is minimised or eliminated as part of the inspections and associated works undertaken.

Table 4: Environmental Work Method Statement – Refer to CEMP Section 7.3 for Risk Ratings					
Environmental Aspect	**Consequence**	**Initial Risk Rating**	**Management Method (Mitigation Controls)**	**Residual Risk Rating**	**Responsibility**
Soils – excavation	Erosion Compaction Disturbed sediments mobilising to waterways	12	Erosion and sediment control measures to be consistent with those specified by OEH and the Blue Book.	6	Environmental Representative
			Erosion and sediment control would be maintained throughout construction activities and be established prior to any works.		Project Supervisor
			Soil materials should be replaced in the same order that they are removed from the ground. It is particularly important that all subsoils are buried and topsoils are replaced on the surface at the completion of the works.		
			Disturbed areas would be stabilised progressively so that no areas remain unstable for any extended length of time.		
			Stockpiles of soils would be covered or bunded and managed in an appropriate manner to prevent dust, erosion and sediment runoff.		
			Excess excavated material that cannot be used in backfilling would be classified in accordance with the Waste Classification Guidelines (EPA 2014) prior to any off-site disposal at a suitably licensed waste facility.		Project Manager / Environmental Representative

Table 4: Environmental Work Method Statement – Refer to CEMP Section 7.3 for Risk Ratings					
Environmental Aspect	**Consequence**	**Initial Risk Rating**	**Management Method (Mitigation Controls)**	**Residual Risk Rating**	**Responsibility**
Soils – stockpiling	Erosion and sediment movement	16	Use sediment fencing as required to ensure surface erosion is managed.	8	Project Manager Project Supervisor
			Use sediment fencing as required to ensure stockpiles on site are managed.		
			Battering of stockpiled material at 1:2 to reduce erosion.		
			Remove temporary works after they are no longer required to ensure area is left as it was found.		
Contamination	Soil contamination is caused by disturbance of asbestos containing materials (ACM), oil, chemicals, grease or fuel spills or leaks from machinery. Disturbance to contaminated land	9	Work would cease in the immediate vicinity of any areas of suspected contamination that are identified prior to or during work.	6	Project Manager / Project Supervisor / Environmental Representative
			Should contamination be identified, preparation of a remediation action plan and notification of Council would be required prior to any remediation in accordance with the Contaminated Land Management Act 1997.		
			Waste management procedures are outlined as part of the CEMP (Appendix H).		
			Any contaminated spoil would be disposed of to an approved facility following appropriate classification.		
			A functioning spill kit would be kept at all construction sites and site offices at all times to enable immediate clean-up of any chemical/fuel spills.		
			Incident response and management including emergency procedures for dealing with chemical / fuel spills will be undertaken in accordance with the Environmental Incident Response Plan in Appendix J of the CEMP.		
			Suspected ACM containing material and unexpected finds are to be managed under the existing AMP for the site, where an exclusion zone is to be constructed, with warning signs and tape. The material is to wet the area down with a fine mist		

Table 4: Environmental Work Method Statement – Refer to CEMP Section 7.3 for Risk Ratings					
Environmental Aspect	**Consequence**	**Initial Risk Rating**	**Management Method (Mitigation Controls)**	**Residual Risk Rating**	**Responsibility**
			and secure with geofabric. AMP ref: *J176343 - Asbestos Management Plan - Greensquare Public School_V1, Greencap, 2022*		
Surface Water Quality	Trenching of watercourses could result in soil erosion and sedimentation at construction sites. Increased suspended sediment loads downstream of construction site Pollution of waterways by fuel or chemicals and wastewater Loss of water quality during wet weather overflows	16	Erosion and sediment control measures will be consistent with those specified in the Blue Book. Appendix E of this CEMP details the erosion and sediment control measures that will be implemented for the project.	8	Environmental Representative
			Watercourse crossings would be trenched perpendicular to the normal flow of the watercourse		Project Manager / Project Supervisor
			A functioning spill kit would be kept at all construction sites and site offices at all times to enable immediate clean-up of chemical/fuel spills.		
			Incident response and management including emergency procedures for dealing with chemical / fuel spills will be undertaken in accordance with the Incident Management Plan in Appendix K of the CEMP.		
			No work would occur during wet weather.		
			The clearing of vegetation is to be minimised where possible during the detailed design and construction planning phases.		Design Support
			Should groundwater be encountered during construction activities, the management measures as detailed in Appendix E of the EMP 'Erosion and Sediment Control Procedure' will be implemented to minimise the risk of polluting surface water.		Project Manager / Project Supervisor
			If dewatering is required where groundwater is intercepted, the discharge volume will be monitored and recorded to evaluate compliance with the allowable threshold.		

Table 4: Environmental Work Method Statement – Refer to CEMP Section 7.3 for Risk Ratings					
Environmental Aspect	**Consequence**	**Initial Risk Rating**	**Management Method (Mitigation Controls)**	**Residual Risk Rating**	**Responsibility**
			Following completion, sites will be backfilled and water tables will return to pre-construction levels.		
Flooding	Localised flooding in heavy wet weather events resulting in soil erosion and sedimentation at construction sites The site is located adjacent the Brickmakers Creek with potential for flooding to occur.	20	In the event of flooding, remedial action would occur in accordance with emergency response procedures as detailed in the Environmental Incident Response Plan in Appendix K of the CEMP.	10	Project Manager / Project Supervisor
			Where significant rainfall is predicted site works should be reassessed and potentially postponed.		
			Sediment controls are to be installed to manage sediment and erosion issues as specified in Appendix I of the CEMP 'Erosion and Sediment Control'.		Environmental Representative / Project Manager
Vegetation Impacts	Non approved impacts to native flora Impacts to native fauna	12	Locate temporary infrastructure (plant sites and offices etc.) in cleared areas away from vegetation.	4	Project Manager / Design Support
			All hollow bearing trees tagged prior to construction occurring.		Environmental Representative
			Accurately and clearly mark out the limits of clearing and trees/ vegetation to be retained including threatened ecological communities, hollow-bearing trees, and riparian vegetation		Project Manager Project Supervisor Environmental Representative
			Regular inspections should be undertaken to clearly mark all retained vegetation/fauna habitat.		

Table 4: Environmental Work Method Statement – Refer to CEMP Section 7.3 for Risk Ratings					
Environmental Aspect	**Consequence**	**Initial Risk Rating**	**Management Method (Mitigation Controls)**	**Residual Risk Rating**	**Responsibility**
Fauna Impacts	Non approved impacts to fauna habitat	16	An ecologist should be present during the clearing of habitat trees to handle and relocate any injured fauna. WIRES should be consulted if any injured fauna are encountered.	4	Ecologist Environmental Representative Project Supervisor
			Timber felled for clearing should be retained on the ground as cover for terrestrial fauna where possible.		
			Where applicable, logs and hollows to be relocated to limit habitat destruction.		
Noxious weed management	Spread of Noxious Weeds	16	Weed removal is to be carried out prior to works commencing.	8	Project Manager Project Supervisor
			All noxious weeds that are cleared as part of the project must be disposed of appropriately.		

Table 4: Environmental Work Method Statement – Refer to CEMP Section 7.3 for Risk Ratings					
Environmental Aspect	**Consequence**	**Initial Risk Rating**	**Management Method (Mitigation Controls)**	**Residual Risk Rating**	**Responsibility**
Air quality	Dust generation Emissions from machinery, equipment and vehicles used during construction	12	Visual monitoring of dust generation would occur and dust suppression measures such as water spraying would be used, especially if windy.	6	Project Manager / Project Supervisor
			Manage spoil stockpiles to minimise the generation of dust. This would include minimising the time spoil is left uncovered and spraying stockpiles to minimise dust.		
			All construction plant and machinery would be properly maintained and fitted with emission control devices complying with the Australian Design Standards.		
			All emission controls used on vehicles and construction equipment would comply with relevant NSW OEH standards as provided under Section 124 of the PoEO Act.		
Noise and vibration	Disturbance from increased vehicle and machinery movements	9	All construction must comply with both noise and vibration standards and guidelines including the Interim Construction Noise Guideline (DECCW, 2009) and the Sydney Water Noise Management Procedure (SWEMS0056).	6	Project Manager / Environmental Representative
			Construction would occur during standard construction hours: 7am – 6pm Monday to Friday and 8am – 1pm Saturday. No work on Sundays and public holidays.		Project Supervisor
			Potential vibration impacts would be limited to the construction period.		
			Quieter and lower vibration emitting construction methods would be used where practicable.		

Table 4: Environmental Work Method Statement – Refer to CEMP Section 7.3 for Risk Ratings					
Environmental Aspect	**Consequence**	**Initial Risk Rating**	**Management Method (Mitigation Controls)**	**Residual Risk Rating**	**Responsibility**
			Local residents would be informed of construction activities via a letterbox drop two weeks prior to the commencement of construction.		Project Manager
			Vibration levels not to exceed those recommended in the standards.		Environmental Representative
Waste Management	Incorrect disposal of construction wastes resulting in contaminated land or water	16	Waste will be managed in accordance with the Waste Management Procedure in Appendix H of the CEMP	8	Environmental Representative
			Waste management will occur according to the hierarchy of avoidance, reuse, recycle, and finally disposal.		Project Manager Project Supervisor
			Waste unable to be reused or recycled will be classified and disposed in accordance with EPA 2014 Waste Classification Guidelines.		
			Worksites would be kept in a clean and tidy condition at all times.		
			Waste refuse bins would be provided on site.		
			Portable toilets would be provided on site with waste removed by an appropriately licensed contractor.		
			Contaminated waste would be separated from non-contaminated waste and removed to a licensed waste facility. Refer to Appendix H 'Construction Waste Management Plan'		
			Risk assessments would be undertaken by the Contractor prior to construction to identify and manage environmental and safety risks for all works. These would be reviewed and revised (as required) during the construction phase to ensure they remain relevant.		

Table 4: Environmental Work Method Statement – Refer to CEMP Section 7.3 for Risk Ratings					
Environmental Aspect	**Consequence**	**Initial Risk Rating**	**Management Method (Mitigation Controls)**	**Residual Risk Rating**	**Responsibility**
			Bunds for any chemical storage would be provided at not less than 110% of the chemical storage tank sizes as per Australian Standards.		
			Material Safety Data Sheets would be available on site.		
Energy usage and Greenhouse Has Emissions (GHG) emissions during construction	Increased GHG emissions from construction	10	Energy use will be minimised by minimising excavation volumes, recycling top soil and turf to reduce transport, disposal and resource use, and ensuring plant and equipment is well maintained and turned off when not in operation. No burning of vegetation or other materials will be permitted on site. Energy efficient plant and equipment will be utilised to perform works.	4	Project Manager / Project Supervisor
			All construction vehicles would be maintained, and emission reduction devices kept in good working order.		
			Vehicles and equipment would be operated in a manner that reduces energy and fuel consumption wherever possible		
Bushfire during construction works	Damage to equipment and machinery Loss of public and private property Human injury or death.	15	Check weather forecasts if hot work is expected so that proposed construction activities do not pose bushfire threats. In particular, hot work is not to be done on total fire ban days without having Rural Fire Service (RFS) approval.	10	Project Manager / Project Supervisor
			Suitable fire suppression equipment (extinguisher, pumps, hoses etc) to be available on site for the duration of site work.		
			Fuels and other flammable materials to be stored and maintained appropriately.		
			Provide adequate site supervision when undertaking activities that have the potential to cause fires.		

Table 5: Further Consequence Reduction Mitigation Controls Identification						
Task/Activity	**Hazard**	**Consequence**	**Initial Risk Rating**	**Control Measures**	**Residual Risk Rating**	**Responsible Person**

Table 6: Environmental Work Method Statement Record		
Job Number:	Date:	Location: 3 Joynton Avenue, Zetland NSW
The following persons acknowledge they attended an induction for the Works to be undertaken at the above location.		
Name	Signature	Date
I acknowledge that I have completed the above induction for the persons listed above.		
Name:	Signature:	Date:

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APPENDIX D: ENVIRONMENTAL RISK ASSESSMENT

APPENDIX D – Environmental Risk Assessment

Aspect category	Potential Impact	Consequence	Likelihood	Risk Rating	Mitigation Measures	Mitigated Likelihood	Residual Risk Rating	Responsibility	Timing Requirements
Topography	Non approved disturbances to terrain and changes to topographical features from construction methods such as trenching.	3	3	9	Areas of disturbance would be minimised to only the directly affected areas through appropriate delineation of construction zones.	1	3	Project supervisor	Pre construction and construction
Soils	• Erosion of exposed soils and stockpiled material • Compaction of soil by machinery and vehicle movements • Disturbed sediments mobilising to waterways	3	4	12	Erosion and sediment control measures to be consistent with those specified by OEH and in *Managing urban storm water (MUS): soils and construction vol. 1* (commonly known as the Blue Book).	2	6	Environmental Representative	Construction
					Erosion and sediment control would be maintained throughout construction activities and be established prior to any works.			Project Supervisor	Pre construction and construction
					Soil materials should be re-instated in the same order that they are removed from the ground. It is particularly important that all subsoils are buried and topsoils are replaced on the surface at the completion of the works.				Construction
					Disturbed areas would be stabilised progressively so that no areas remain unstable for any extended length of time.				
					Stockpiles of soils would be covered or bunded and managed in an appropriate manner to prevent dust, erosion and sediment runoff.				
					Excess excavated material that cannot be used in backfilling would be classified in accordance with the Waste Classification Guidelines (EPA 2014) prior to any off-site disposal at a suitably licensed waste facility.			Project Manager / Environmental Representative	
Contamination	• Soil contamination caused by asbestos, oil, chemicals, grease or fuel spills or leaks from machinery. • Disturbance to contaminated land	3	3	9	Work would cease in the immediate vicinity of any areas of suspected contamination that are identified prior to or during work.	2	6	Project Manager / Project Supervisor / Environmental Representative	Construction
					Should additional contamination be identified, the existing remediation action plan is to be amended and notification of Council would be required prior to any remediation in accordance with the Contaminated Land Management Act 1997.				
					Waste management procedures are outlined as part of the CEMP (Appendix H).				
					Any contaminated spoil would be disposed of to an approved facility following appropriate classification.				

Aspect category	Potential Impact	Consequence	Likelihood	Risk Rating	Mitigation Measures	Mitigated Likelihood	Residual Risk Rating	Responsibility	Timing Requirements
					A functioning spill kit would be kept at all construction sites and site offices at all times to enable immediate clean-up of any chemical/fuel spills.				
					Incident response and management including emergency procedures for dealing with chemical / fuel spills will be undertaken in accordance with the Environmental Incident Response Plan in Appendix K of the CEMP.				
Surface Water Quality	• Increased suspended sediment loads downstream of construction site • Pollution of waterways by fuel or chemicals and wastewater • Loss of water quality during wet weather overflows	3	4	12	Erosion and sediment control measures will be consistent with those specified in Managing Urban Storm Water: soils and construction vol. 1 (the Blue Book). Appendix E of the EMP details the erosion and sediment control measures that will be implemented for the project.	2	4	Environmental Representative	Construction
					No refuelling, fuel decanting or vehicle maintenance work would take place within proximity of waterways			Project Manager / Project Supervisor	
					Refuelling to take place in designated areas in bunded and hardstand areas				
					A functioning spill kit would be kept at all construction sites and site offices at all times to enable immediate clean-up of chemical/fuel spills.				
					Incident response and management including emergency procedures for dealing with chemical / fuel spills will be undertaken in accordance with the Incident Management Plan in Appendix J of the EMP.				
					No work would occur during wet weather.				
					The clearing of vegetation is to be minimised where possible during the detailed design and construction planning phases.			Design Support	Design
Groundwater	• Impacts on water-tables • Impacts on Groundwater quality	3	2	6	Should groundwater be encountered during construction activities, the management measures as detailed in Appendix E of the EMP 'Erosion and Sediment Control Procedure' will be implemented to minimise the risk of polluting surface water.	2	6	Design support / Environmental Representative	Design
					If dewatering is required where groundwater is intercepted, the discharge volume will be monitored and recorded to evaluate compliance with the allowable threshold.				Construction

Aspect category	Potential Impact	Consequence	Likelihood	Risk Rating	Mitigation Measures	Mitigated Likelihood	Residual Risk Rating	Responsibility	Timing Requirements
					Following completion, sites will be backfilled and water tables will return to pre-construction levels.				
Flooding	• Localised flooding may occur in certain locations due to heavy wet weather events • This flooding could result in soil erosion and sedimentation at construction sites	4	2	8	In the event of flooding, remedial action would occur in accordance with emergency response procedures as detailed in the Environmental Incident Response Plan in Appendix J of the CEMP.	2	4	Project Manager / Project Supervisor	Construction
					Where significant rainfall is predicted, site works should be reassessed and potentially postponed.				
					Personnel should not be allowed within the creek channel during periods of predicted high rainfall.				
					Sediment controls are to be installed to manage sediment and erosion issues as specified in Appendix E of the CEMP 'Erosion and Sediment Control'.			Environmental Representative / Project Manager	Design
Site Personnel	Site personnel operating not in accordance with CEMP	4	3	12	All staff working on the project will be made aware of the ecological sensitivity of the bushland and other environmental aspects by educating staff at the induction phase.	1	4	Project Manager	Construction
Site Planning	• Non approved impacts to native flora • Impacts to native fauna	4	3	12	Site impacts are limited to clearly defined boundaries.	1	4	Project Manager	Construction
					Locate temporary infrastructure (plant sites and offices etc.) in cleared areas away from vegetation.			Design Support	Design
								Project Manager	Construction
					All hollow bearing trees tagged prior to construction occurring.			Environmental Representative	Pre Construction
					Accurately and clearly mark out the limits of clearing and trees/ vegetation to be retained including threatened ecological communities, hollow-bearing trees, and riparian vegetation.			Project Manager Project Supervisor Environmental Representative	Design & Construction
					Regular inspections should be undertaken to clearly mark all retained vegetation/fauna habitat.				Construction
Pre Clearing Fauna Survey	Impacts to native fauna	4	3	12	All hollow bearing trees are identified prior to construction works and are to be avoided.	1	4	Environmental Representative	Pre construction
Riparian Areas	Non approved impacts to riparian areas	4	3	12	Minimise the area of disturbance in riparian zones, clearly mark out work zones in riparian areas and protect areas with para-web fencing or similar.	1	4	Project Manager Project Supervisor Environmental Representative	Construction
					All works within close proximity to riparian zones to have adequate sediment and erosion control as specified in Appendix E of the CEMP ' Erosion and Sediment Control'.				

Aspect category	Potential Impact	Consequence	Likelihood	Risk Rating	Mitigation Measures	Mitigated Likelihood	Residual Risk Rating	Responsibility	Timing Requirements
					Ongoing audits of site works.			Environmental Auditor	
Management of Fauna Habitat	Non approved impacts to fauna habitat	4	4	16	An ecologist should be present during the clearing of habitat trees to handle and relocate any injured fauna. WIRES should be consulted if any injured fauna are encountered.	1	4	Ecologist Environmental Representative Project Supervisor	Construction
Clearing of Native vegetation	Non approved Impacts to native vegetation	3	3	9	Where trees require felling, retain the timber as Coarse Woody Debris for enhancement of degraded habitats (where appropriate). Avoid the removal of trees with hollows (alive or dead) where practicable. Where removal cannot be avoided for OH&S reasons, maintain the tree intact (as far as possible) and place it on the ground in adjoining vegetation. Where applicable logs and hollows to be relocated to limit habitat destruction.	1	3	Project Manager	Construction
Noxious weed management	Spread of Noxious Weeds	3	3	9	Establish a noxious weed management protocol that introduces an identification card for contractors Weed removal is to be carried out prior to works commencing. All noxious weeds that are cleared as part of the project must be disposed of appropriately. Implement inspection/maintenance procedures to reduce the carriage of weed material on machinery. Rehabilitation should be undertaken in consultation with landowners, to determine any future development plans and identify areas where rehabilitation of native vegetation would be appropriate. Rehabilitation should be part of any pre-planning works as there is considerable lead-up time (up to 6 months for growing native plants). Other less critical areas disturbed by construction should be direct seeded or hand seeded with native grasses as part of the rehabilitation process.	2	4	Environmental Representative Project Manager Project Supervisor	Construction
Management of threatened plant species	Impacts to threatened plant species	5	2	10	Any threatened plant species are to be flagged on the site, then accurately surveyed and marked on plans to inform the detailed design.	1	5	Project Manager Project Supervisor	Construction

Aspect category	Potential Impact	Consequence	Likelihood	Risk Rating	Mitigation Measures	Mitigated Likelihood	Residual Risk Rating	Responsibility	Timing Requirements
					Wherever possible, clearing of native vegetation will be avoided. Stockpiles, storage and depot sites will be sited appropriately to avoid areas of native vegetation If substantial disturbance to the critical root zone of any larger trees is required, advice will be sought from a qualified arborist particularly where trees may pose a safety hazard.				
Aboriginal heritage	Disturbance to Aboriginal cultural heritage objects	3	1	3	Works which come into contact with Aboriginal artefacts or site significant areas will be stopped until an AHIP is acquired. If any human skeletal remains are discovered, cease work immediately and notify the NSW Police. For historic remains (>100 years) notification is required to the DoP Heritage Branch and OEH Aboriginal heritage division. These authorities would direct the appropriate response.	1	3	Project Manager Project Supervisor	Construction
Non Aboriginal heritage	Disturbance to a heritage item	3	1	3	All proposal components would be located to avoid known heritage sites. If any human skeletal remains are discovered, cease work immediately and notify the NSW Police. For historic remains (>100 years) notification is required to the DoP Heritage Branch and OEH Aboriginal heritage division. These authorities would direct the appropriate response. If an item (or suspected item) of non-Aboriginal heritage is discovered during the work, all work in that area would cease and the Contractor's Environmental Representative would inform CoS' Project Manager as soon as possible to determine the subsequent course of action. Section 146 of the Heritage Act requires any person who believes they have discovered or located a relic (in any circumstances) to notify the Heritage Council. The S139 Exception & S146 Notification of a 'Relic' Form (S139-S146Frm2013.pdf, 45kB) should be used for all notifications to the Heritage Council regarding the discovery of relics.	1	3	Project Manager Environmental Representative	Construction

Aspect category	Potential Impact	Consequence	Likelihood	Risk Rating	Mitigation Measures	Mitigated Likelihood	Residual Risk Rating	Responsibility	Timing Requirements
Construction air quality	• Localised increases in dust generated during excavation works • Dust from exposed spoil stockpiles • Emissions from machinery, equipment and vehicles used during construction	3	4	12	Visual monitoring of dust generation would occur and dust suppression measures such as water spraying would be used, especially if windy.	2	6	Project Manager / Project Supervisor	Construction
					Manage spoil stockpiles to minimise the generation of dust. This would include minimising the time spoil is left uncovered and spraying stockpiles to minimise dust.				
					All construction plant and machinery would be properly maintained and fitted with emission control devices complying with the Australian Design Standards.				
					All emission controls used on vehicles and construction equipment would comply with relevant NSW OEH standards as provided under Section 124 of the PoEO Act.				
Construction noise and vibration	• Disturbance from increase vehicle and machinery movements • Noise from excavation activities • Noise associated with generator and compressor operation • Noise from alarms on machinery, such as vehicle reverse alarms	3	3	9	All construction must comply with both noise and vibration standards and guidelines including the Interim Construction Noise Guideline (DECCW, 2009), including construction force inductions with specific noise mitigation measures required for the site.	2	6	Environmental Representative	Construction
					Construction would occur during standard construction hours: 7:30am – 5:30pm Monday to Friday and 7:30am – 3:30pm Saturday. No work on Sundays and public holidays.			Project Supervisor	
					Potential vibration impacts would be limited to the construction period.				
					Quieter and lower vibration emitting construction methods would be used where practicable.				
					Local residents would be informed of construction activities via a letterbox drop two weeks prior to the commencement of construction.			Project Supervisor	
					Vibration levels not to exceed those recommended in the standard, DIN 4150-3 1999: Structural Vibration – Part 3; Effects of vibration on structures. Construction activities would be conducted in accordance with the limits of German Standard DIN 4150-3 1999: Structural Vibration – Part 3; Effects of vibration on structures.			Environmental Representative	

Aspect category	Potential Impact	Consequence	Likelihood	Risk Rating	Mitigation Measures	Mitigated Likelihood	Residual Risk Rating	Responsibility	Timing Requirements
Waste Management	Incorrect disposal of construction wastes resulting in contaminated land or water	4	4	16	Waste will be managed in accordance with the Waste Management Procedure in Appendix H of the CEMP	2	8	Environmental Representative	Construction
					Waste management will occur according to the hierarchy of avoidance, reuse, recycle, and finally disposal.			Project Manager Project Supervisor	
					Waste unable to be reused or recycled will be classified and disposed in accordance with EPA 2014 Waste Classification Guidelines.				
					Worksites would be kept in a clean and tidy condition at all times.				
					Waste refuse bins would be provided on site.				
					Portable toilets would be provided on site with waste removed by an appropriately licensed contractor.				
					Contaminated waste would be separated from non-contaminated waste and removed to a licensed waste facility.				
					Risk assessments would be undertaken by the Contractor prior to construction to identify and manage environmental and safety risks for all works. These would be reviewed and revised (as required) during the construction phase to ensure they remain relevant.				Pre Construction and Construction
					Bunds for any chemical storage would be provided at not less than 110% of the chemical storage tank sizes as per Australian Standards.				Construction
					Material Safety Data Sheets would be available on site.				

Aspect category	Potential Impact	Consequence	Likelihood	Risk Rating	Mitigation Measures	Mitigated Likelihood	Residual Risk Rating	Responsibility	Timing Requirements
Soils	• Removal of topsoil will increase the potential for sediment erosion • Stockpiling activities on site	4	4	16	Use sediment fencing as required to ensure surface erosion is managed. Use sediment fencing as required to ensure stockpiles on site are managed. Ensure stockpiled soil material is not left near or within the creek line. Battering of stockpiled material at 1:2 to reduce erosion. Manage potential asbestos containing material under the existing asbestos management plan for the site. An exclusion zone is to be constructed, with warning signs and tape. The material is to wet the area down with a fine mist and secure with geofabric. Ref: Greencap (2022) J176343 - Asbestos Management Plan - Greensquare Public School_V1 Remove temporary works after they are no longer required to ensure area is left as it was found.	2	8	Project Manager Project Supervisor	Construction
Construction traffic	• Increased traffic in residential areas • Reduced safety for pedestrians and cyclists in residential areas • Increased noise associated with increased traffic	5	4	20	Construction traffic will be management in accordance with the onsite Construction Traffic Management Plan (CTMP). Heavy vehicle movements would be kept to a minimum (or eliminated) during school zone hours and morning peak hours to maximise safety and reduce congestion. No unnecessary idling of vehicles.	2	10	Environmental Representative Project Supervisor	Construction
Energy usage and Green House Gases (GHG) emissions during construction	Increased GHG emissions from construction	2	5	10	• Energy use will be minimised by minimising excavation volumes, recycling top soil and turf to reduce transport, disposal and resource use, and ensuring plant and equipment is well maintained and turned off when not in operation. • No burning of vegetation or other materials will be permitted on site. • Energy efficient plant and equipment will be utilised to perform works. All construction vehicles would be maintained, and emission reduction devices kept in good working order.	2	4	Project Manager / Project Supervisor	Construction

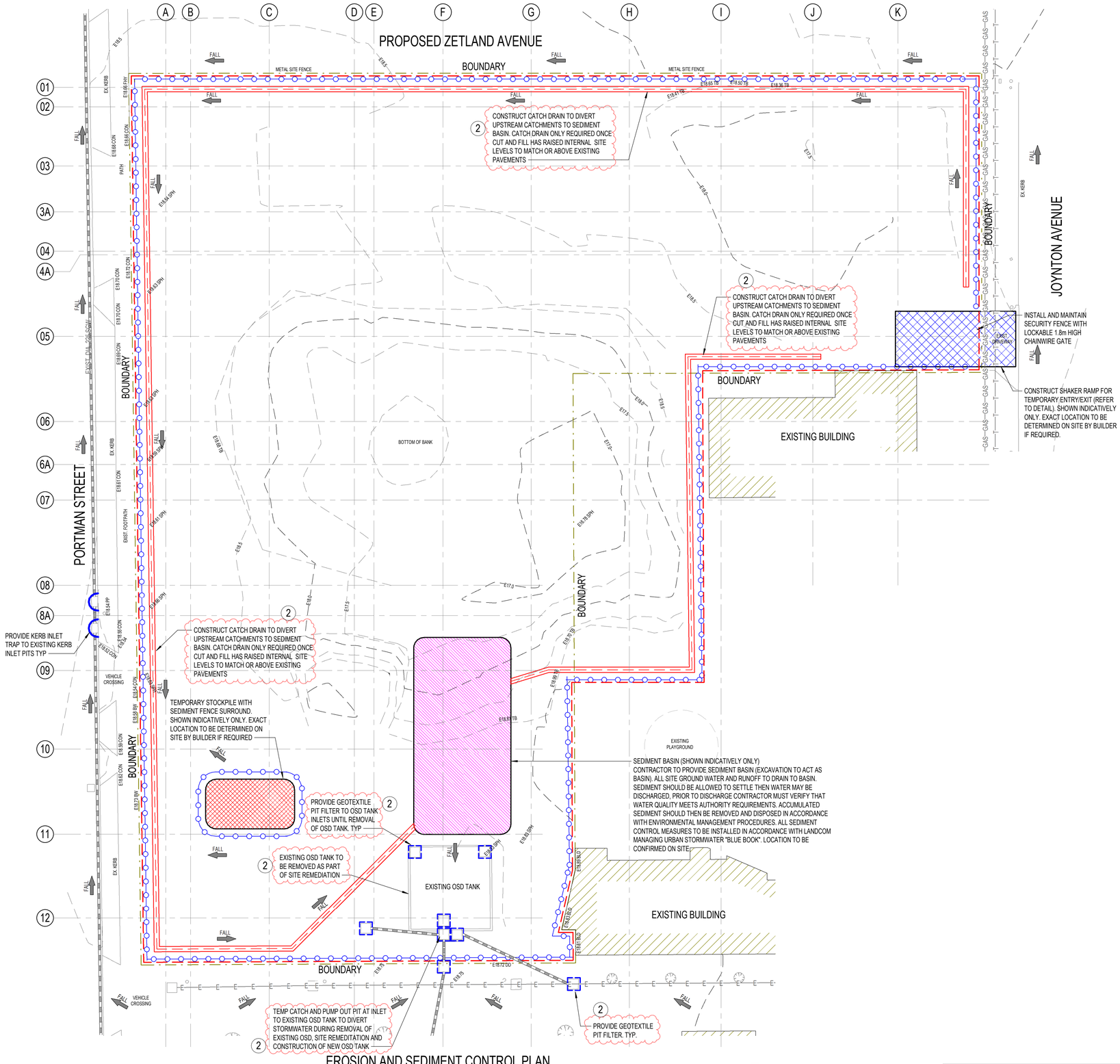
Aspect category	Potential Impact	Consequence	Likelihood	Risk Rating	Mitigation Measures	Mitigated Likelihood	Residual Risk Rating	Responsibility	Timing Requirements
					Vehicles and equipment would be operated in a manner that reduces energy and fuel consumption wherever possible				
Bushfire during construction works	• Damage to equipment and machinery • Loss of public and private property • Human injury or death.	5	3	15	Check weather forecasts if hot work is expected so that proposed construction activities do not pose bushfire threats. In particular, hot work is not to be done on total fire ban days without having Rural Fire Service (RFS) approval.	2	10	Project Manager / Project Supervisor	Construction
					Suitable fire suppression equipment (extinguisher, pumps, hoses etc) to be available on site for the duration of site work.				
					Fuels and other flammable materials to be stored and maintained appropriately.				
					Provide adequate site supervision when undertaking activities that have the potential to cause fires.				

Construction Environmental Management Plan

Hutchinson Builders

GSPS

APPENDIX E: EROSION AND SEDIMENT MANAGEMENT PLAN



EROSION AND SEDIMENT CONTROL PLAN

SCALE 1 : 200

SOIL AND WATER MANAGEMENT NOTES

1. IT HAS BEEN ASSUMED THAT HOARDING/SILT FENCING WILL BE PROVIDED TO THE STAGE BOUNDARY SUFFICIENT TO PREVENT SEDIMENT RUNOFF FROM LEAVING SITE (EXCEPT IN THE CASE OF ENTRY/EXIT LOCATIONS WHERE TEMPORARY CONSTRUCTION ENTRY/EXIT SEDIMENT TRAP ARE PROVIDED). IF THIS IS NOT THE CASE, PROVIDE SEDIMENT FENCE TO STANDARD DETAIL BELOW AS REQUIRED TO PREVENT SEDIMENT FROM LEAVING SITE, DIRECT RUNOFF TO SEDIMENT BASIN.
2. ALL SEDIMENT CONTROL MEASURES TO BE INSTALLED IN ACCORDANCE WITH LANDCOM MANAGING URBAN STORMWATER "BLUE BOOK".

SEDIMENT CONTROL CONDITIONS

1. SEDIMENT FENCES WILL BE INSTALLED AS SHOWN AND ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER TO CONTAIN COARSER SEDIMENT FRACTIONS INCLUDING AGGREGATED FINES AS NEAR AS POSSIBLE TO THEIR SOURCE.
2. SEDIMENT REMOVED FROM ANY TRAPPING DEVICE WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS CANNOT OCCUR.
3. STOCKPILES WILL BE PLACED WHERE SHOWN ON DRAWING OR ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER AND NOT WITHIN 5m OF HAZARD AREA INCLUDING LIKELY AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS AND DRIVEWAYS.
4. WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM WITH INLET FILTERS (SEE DETAILS) UNLESS IT IS SEDIMENT FREE.
5. TEMPORARY SEDIMENT TRAPS WILL BE RETAINED UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.
6. CONTRACTOR TO DESIGN/SIZE/CONSTRUCT TEMPORARY SEDIMENT BASIN. WATER SHOULD BE ALLOWED TO SETTLE BEFORE DISCHARGE. CONTRACTOR MUST VERIFY THAT WATER QUALITY MEETS AUTHORITIES REQUIREMENTS PRIOR TO DISCHARGE. ACCUMULATED SEDIMENT SHOULD THEN BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH ENVIRONMENTAL MANAGEMENT PROCEDURES.

SEDIMENT CONTROL CONDITIONS

SITE MANAGER WILL INSPECT THE SITE AT LEAST WEEKLY AND WILL;

1. ENSURE THAT DRAINS OPERATE PROPERLY AND TO EFFECT ANY NECESSARY REPAIRS.
2. REMOVE SPILLED SAND OR OTHER MATERIAL FROM HAZARD AREAS, INCLUDING LANDS CLOSER THAN 5m. FROM AREAS OF LIKELY CONCENTRATED OF HIGH VELOCITY FLOWS ESPECIALLY WATERWAYS AND PAVED AREAS.
3. REMOVE TRAPPED SEDIMENT WHENEVER LESS THAN DESIGN CAPACITY REMAINS WITHIN THE STRUCTURE
4. ENSURE REHABILITATED LANDS HAVE EFFECTIVELY REDUCED EROSION HAZARD AND TO INITIATE UPGRADING OR REPAIR AS APPROPRIATE.
5. CONSTRUCT ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS.
6. MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED.
7. REMOVE TEMPORARY SOIL CONSERVATION STRUCTURES AS THE LAST ACTIVITY IN THE REHABILITATION PROGRAM.

AS PART OF THE STATUTORY 'DILIGENCE OF CARE' RESPONSIBILITIES, THE SITE MANAGER WILL KEEP A LOGBOOK MAKING ENTRIES AT LEAST WEEKLY, IMMEDIATELY BEFORE FORECAST RAIN AND AFTER RAINFALL ENTRIES WILL INCLUDE:

1. THE VOLUME AND INTENSITY OF ANY RAINFALL EVENTS.
2. THE CONDITION OF ANY SOIL AND WATER MANAGEMENT WORKS.
3. THE CONDITION OF VEGETATION AND ANY NEED TO IRRIGATE.
4. THE NEED FOR DUST PREVENTION STRATEGIES
5. ANY REMEDIAL WORKS TO BE UNDERTAKEN.

THE BOOK WILL BE KEPT ONSITE AND MADE AVAILABLE TO ANY AUTHORISED PERSON ON REQUEST. IT WILL BE GIVEN TO PROJECT MANAGER AT THE CONCLUSION OF WORKS.

DISCHARGE OF CONTAMINATED GROUND WATER

CONTAMINATED GROUNDWATER SHALL NOT BE DISCHARGED INTO THE CITY'S STORMWATER DRAINAGE SYSTEM. OPTIONS FOR THE DISPOSAL OF GROUNDWATER INCLUDE DISPOSAL TO SEWER WITH PRIOR APPROVAL FROM SYDNEY WATER OR OFF-SITE DISPOSAL BY A LIQUID WASTE TRANSPORTER FOR THE TREATMENT/DISPOSAL TO AN APPROPRIATE WASTE TREATMENT/PROCESSING FACILITY.

ENVIRONMENTAL MANAGEMENT PLAN

PRIOR TO THE COMMENCEMENT OF ANY DEMOLITION AND REMEDIAL WORKS AN ENVIRONMENTAL MANAGEMENT PLAN (EMP) MUST BE PREPARED FOR THE SITE AND SUBMITTED TO THE COUNCIL'S AREA PLANNING MANAGER FOR WRITTEN APPROVAL PRIOR TO THE COMMENCEMENT OF WORK. THE EMP MUST CONSIDER ALL POTENTIAL ENVIRONMENTAL IMPACTS FROM THE APPROVED WORKS INCLUDING, BUT NOT LIMITED TO SEDIMENTATION CONTROL, CONTAMINATION CONTAINMENT, STOCKPILES, NOISE AND VIBRATION, ODOURS AND DUST EMISSIONS. ALL WORKS MUST BE UNDERTAKEN ONSITE IN ACCORDANCE WITH THE APPROVED ENVIRONMENTAL MANAGEMENT PLAN.

NOTE:
ALL EXISTING PROPERTY SERVICES LOCATIONS AND DEPTHS ARE APPROXIMATE ONLY AND MUST BE VERIFIED ON SITE. THE CONTRACTOR SHOULD SUPPLY PRECISE LOCATIONS AND DEPTHS TO THE ENGINEER FOR REVIEW PRIOR TO ANY WORKS WHICH MAY AFFECT THESE SERVICES.

LEGEND

- DENOTES PROPOSED SITE BOUNDARY.
- DENOTES PROPOSED SECURITY FENCE.
- DENOTES PROPOSED SEDIMENT FENCE. REFER TO DETAIL ON DRAWING C016
- DENOTES PROPOSED CATCH DRAIN REFER TO DETAIL ON DRAWING C016
- DENOTES MESH AND GRAVEL INLET FILTER REFER TO DETAIL ON DRAWING C016
- DENOTES MESH AND GRAVEL INLET FILTER REFER TO DETAIL ON DRAWING C016
- DENOTES SEDIMENTATION BASIN
- DENOTES VEHICLE SHAKEDOWN DEVICE
- DENOTES SITE STOCKPILE
- FALL — DENOTES OVERLAND FLOW PATH

SYDNEY ONE CALL SYSTEM — DIAL 1100 — DIAL BEFORE YOU DIG

DIAL 1100
DIAL BEFORE YOU DIG
CONTRACTOR TO CONFIRM LOCATION OF EXISTING SERVICES PRIOR TO COMMENCEMENT OF WORKS

2	PRELIMINARY ISSUE	12/08/22
1	PRELIMINARY ISSUE	09/08/22
ISSUE	REVISION	DATE

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CLIENT: HUTCHINSON BUILDERS Established 1912

ARCHITECT: BVN

TITLE: EROSION AND SEDIMENT CONTROL PLAN

Designed	CW	Drawn	MD	North
Project Leader	MW	Certified		
Project Director	MW	Sheet Size	A1	
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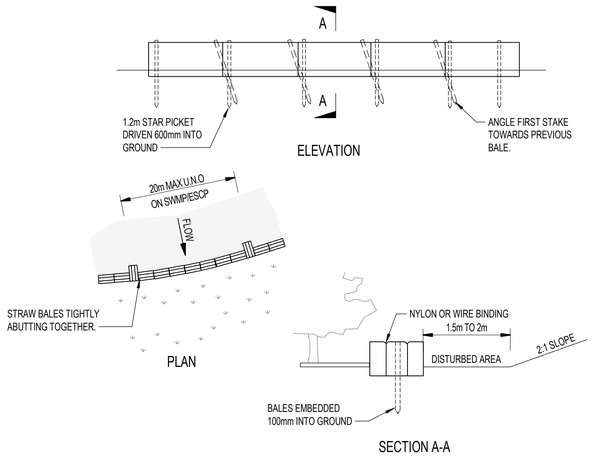
NOT FOR CONSTRUCTION OR PRICING

Project	Drawing	Revision
220037	C015	2

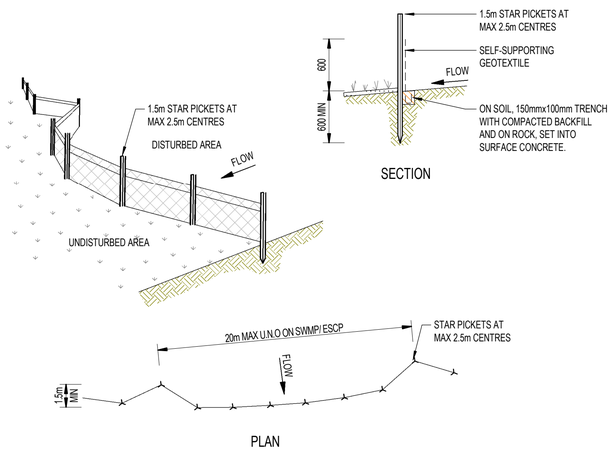
GREEN SQUARE INTEGRATED COMMUNITY FACILITY AND SCHOOL , ZETLAND AVENUE, GREEN SQUARE, 2017



STRAW BALE FILTER DETAIL

CONSTRUCTION NOTES

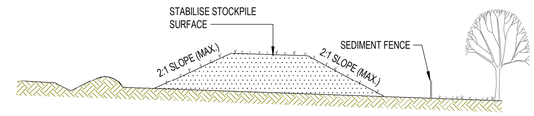
1. CONSTRUCT THE STRAW BALE FILTER AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE.
2. PLACE BALES LENGTHWISE IN A ROW WITH ENDS TIGHTLY ABUTTING. USE STRAW TO FILL ANY GAPS BETWEEN BALES. STRAWS ARE TO BE PLACED PARALLEL TO GROUND.
3. ENSURE THAT THE MAXIMUM HEIGHT OF THE FILTER IS ONE BALE.
4. EMBED EACH BALE IN THE GROUND 75mm TO 100mm AND ANCHOR WITH TWO 1.2 METRE STAR PICKETS OR STAKES. ANGLE THE FIRST STAR PICKET OR STAKE IN EACH BALE TOWARDS THE PREVIOUSLY LAID BALE. DRIVE THEM 600mm INTO THE GROUND AND, IF POSSIBLE, FLUSH WITH THE TOP OF THE BALES. WHERE STAR PICKETS ARE USED AND THEY PROTRUDE ABOVE THE BALES, ENSURE THEY ARE FITTED WITH SAFETY CAPS.
5. WHERE A STRAW BALE FILTER IS CONSTRUCTED DOWNSLOPE FROM A DISTURBED BATTER, ENSURE THE BALES ARE PLACED 1 TO 2 METRES DOWNSLOPE FROM THE TOE.
6. ESTABLISH A MAINTENANCE PROGRAM THAT ENSURES THE INTEGRITY OF THE BALES IS RETAINED - THEY COULD REQUIRE REPLACEMENT EACH TWO TO FOUR MONTHS.



SEDIMENT FENCE DETAIL

CONSTRUCTION NOTES

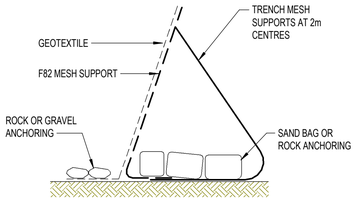
1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.
7. SEDIMENT FENCE NOT REQUIRED WHEN INTERNAL SITE LEVEL IS LOWER THEN BOUNDARY LEVEL (2)



STOCKPILE DETAIL

CONSTRUCTION NOTES

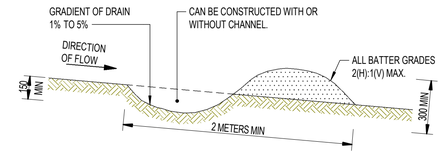
1. PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.



ALTERNATIVE SEDIMENT FENCE DETAIL

CONSTRUCTION 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 GEOTEXTILE 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 GEOTEXTILE. THE ANCHORING SHOULD BE SUFFICIENTLY LARGE TO ENSURE STABILITY OF THE STRUCTURE IN THE DESIGN STORM EVENT, USUALLY THE 10 -YEAR EVENT.

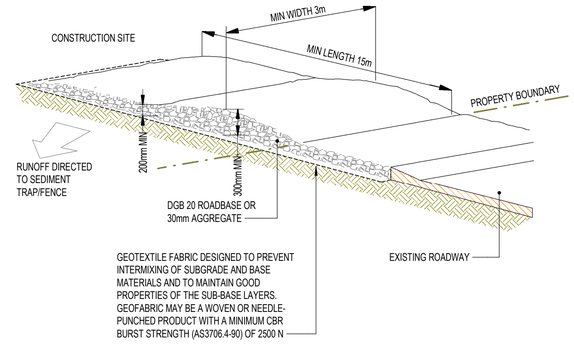


EARTH BANK - LOW FLOW DETAIL

NOTE:
ONLY TO BE USED AS TEMPORARY BANK
WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.

CONSTRUCTION NOTES

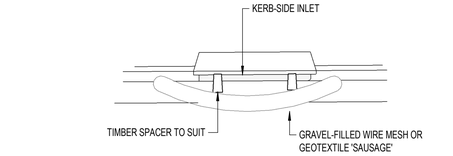
1. BUILD WITH GRADIENTS BETWEEN 1 AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

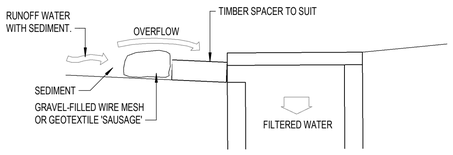


STABILISED SITE ACCESS DETAIL

CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.



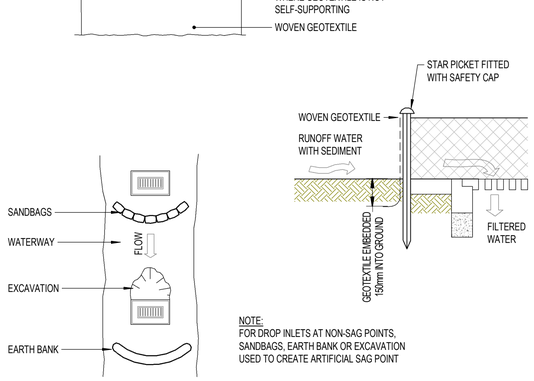


NOTE:
THIS PRACTICE ONLY TO BE USED WHERE SPECIFIED IN APPROVED SWMP/ESCP.

MESH AND GRAVEL INLET FILTER DETAIL

CONSTRUCTION NOTES

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

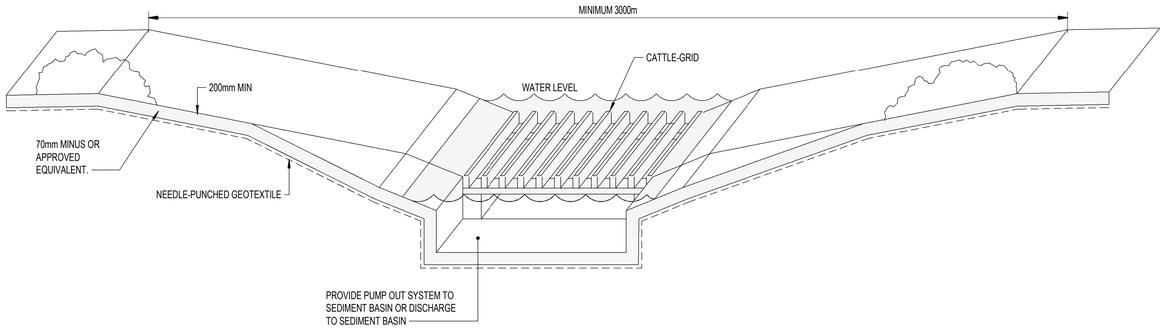


NOTE:
FOR DROP INLETS AT NON-SAG POINTS, SANDBAGS, EARTH BANK OR EXCAVATION USED TO CREATE ARTIFICIAL SAG POINT

GEOTEXTILE INLET FILTER DETAIL

CONSTRUCTION NOTES

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. N WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.



STABILISED SITE ACCESS DETAIL

CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUB-GRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE. AGGREGATE SIZE NOT TO EXCEED 75mm.
4. ENSURE THE STRUCTURE IS AT LEAST 15m LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3m WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO SEDIMENT FENCE.

ISSUE	REVISION	DATE
2	PRELIMINARY ISSUE	12/08/22
1	PRELIMINARY ISSUE	09/08/22

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CLIENT: HUTCHINSON BUILDERS Established 1912

ARCHITECT: BVN

TITLE: EROSION AND SEDIMENT CONTROL DETAILS

Designed	CW	Drawn	MD	North
Project Leader	MW	Certified		
Project Director	MW	Sheet Size	A1	
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PRELIMINARY ISSUE
NOT FOR CONSTRUCTION OR PRICING

Project	Drawing	Revision
220037	C016	2

GREEN SQUARE INTEGRATED COMMUNITY FACILITY AND SCHOOL , ZETLAND AVENUE, GREEN SQUARE, 2017

Construction Environmental Management Plan

Hutchinson Builders

GSPS

APPENDIX F: CONTAMINATION CONTAINMENT PLAN

1. PURPOSE

To address the requirements of the Development Consent in reference to a contamination containment for construction of the Green Square Integrated Community Facility and School at 3 Joynton Avenue, Zetland NSW (the site).

Previous contamination investigation identified the presence of fill material underlying the site reported to be impacted with polycyclic aromatic hydrocarbon (PAH), heavy metals, total petroleum hydrocarbons (TPH) and asbestos to varying degrees. A Remedial Action Plan (RAP) has been prepared by JBS&G to address identified contamination issues and included as part of the SSD Application. The remediation strategy proposed in the RAP (JBS&G 2020) comprises a cap and containment strategy based on physical separation, inclusive of implementation of an on-going site environmental management plan.

Approval for remediation and site preparation works has been separately granted under DA D/2020/923. Noting that the built form and landscaping elements as proposed in the SSDA works are to form part of the capping layer, some remediation works will therefore be required to be completed during the construction phase (SSDA) works. It will be required that the RAP be implemented consistent with the requirements of this CMP.

2. SCOPE

Applies to all Hutchinson Builders work-related activities, workplaces, employees, contractors, subcontractors and visitors associated with the Project. The following aspects will be covered to determine the environmental risk for each. Site soils are impacted with heavy metals, TRHs, PAHs and asbestos and are present at the site surface and further extending to near-surface depths as associated with localised areas of impacted soils present on the site and requiring remediation. Measures are required to be put in place to eliminate potential exposure of workers to contaminant (including asbestos) impact where their work requires potential direct contact to contaminated / asbestos affected soils. Potential exposure will occur via inhalation of asbestos fibres released from affected soils on uncovering / disturbance of contaminated soils, potential inhalation of particulates associated with impacted soils and/or direct contact to contaminated soils as will require to be caused to be disturbed by the site remediation works. The stockpiling area will be confirmed prior to commencement.

Hutchinson Builders shall provide the minimum following advice to any persons proposing to undertake works inclusive of direct contact to soils on the site:

- Contractors undertaking ground disturbance works on the site shall be notified prior to the commencement of any site works of the occurrence of asbestos impacted soils on the site, as occurring with other contaminants including heavy metals, petroleum hydrocarbons and PAHs.
- Excavation/disturbance works inclusive of direct contact of site personnel to asbestos affected or otherwise potentially contaminated soils shall only commence where appropriate precautions are taken, such as use of the correct PPE, as outlined below.
- Implementation of dust, noise and sediment control procedures as outlined throughout this CEMP is required during all site excavation works.
- The area of the excavation/disturbance shall be barricaded to prevent access of unprotected site personnel and contractors.

- An Asbestos Management Plan as prepared as additional to this document by the accredited contractor engaged to undertake specialist asbestos removal works.

Excavation methodologies will be undertaken in accordance with the Excavation Work Method Statement in **Appendix C**. All workers likely to be in contact with asbestos present in site soils are required to meet the applicable personal protective equipment (PPE) requirements as outlined below and must have undertaken Occupational Health and Induction Training as defined in Part 2.4 of the Work Health and Safety Regulation 2017. Noting the asbestos occurs with other contaminants on the site, these requirements are further extended to all contaminated soils on the site. Any person required to directly contact soils shall be required to wear the following PPE where asbestos or potential asbestos containing materials are observed in the soils:

- P2 (or higher) class half face respirator;
- Disposable coveralls made from materials which provide adequate protection against fibre penetration;
- Over boot covers; and
- Gloves.

3. PROCEDURE

It is presumed that all fill materials at the site are asbestos-containing. As a result, all excavated soils are to be stockpiled in a manner that minimises the potential for contamination of materials other than the impacted material at the site. Contaminated materials which are required to be disposed from the site and as generated by the remediation works shall be disposed of off-Site in accordance with the requirements of NSW EPA Waste Classification Guidelines Part 1: Classifying Waste (2014) or as updated by NSW EPA.

It is noted that implementation of the guideline requirements will include the completion of a waste classification assessment prior to off-site disposal of the material to a suitably licensed waste facility. Copies of all documentation, including the classification report, transport and waste facility dockets will be retained by the Responsible Person.

It is noted that, in addition to site contamination management requirements, Hutchinson Builders may require implementation of procedures to ensure the suitable compaction of backfilled areas. Backfilling of areas will most likely be required following excavations as required with remediation works. Following backfilling of excavations, the RAP requires the placement of a visual marker layer above which a capping profile of suitable fill material will be placed (for both remediation and construction objectives).

It is noted that no waste will be received at the site and only virgin excavated natural material (VENM), excavated natural material (ENM) or materials covered by an NSW EPA exemption is to be imported to the site for use in reinstatement activities as detailed in the RAP. Documentation confirming the suitability of the material for use on site is required to be maintained and supplied to the environmental consultant for inclusion in the final validation report.

Construction Environmental Management Plan

Hutchinson Builders

GSPS

APPENDIX G: SOIL AND WATER MANAGEMENT PLAN

1. PURPOSE

To address the requirements of the Development Consent in reference to a Construction Soil and Water Management Plan for construction of the Green Square Integrated Community Facility and School at 3 Joynton Avenue, Zetland NSW (the site).

2. SCOPE

Applies to all Hutchinson Builders work-related activities, workplaces, employees, contractors, subcontractors and visitors associated with the Project. The following aspects will be covered to determine the environmental risk for each.

- Soils;
- Surface water;
- Groundwater; and
- Contamination associated with the above media.

3. PROCEDURE

This Soil and Water Management Plan details how Hutchinson Builders will undertake works associated with the Project in accordance with the following environmental regulations:

- Contaminated Land Management Act 1997; and
- Water Management Act 2000.

4. SOILS

4.1 Background

A review of the regional soil map (DLWC 20027) indicated that soil in the vicinity of the site comprises soils from the Tuggerah Soil Landscape Group. This soil group typically occurs on gently undulating to rolling coastal dune fields with local relief to 20 m and slope gradients generally in the range of 1 % to 10 % but with isolated instances of up to 35 %. The soils are noted to comprise deep podzols on dunes and podzols/humus podzols intergrades on swales. The soils are subject to extreme wind and wave erosion hazard, are non-cohesive and exhibit very low fertility and very high permeability.

Natural ecosystems on this soil type have been extensively cleared. Site observations from the most recent Data Gap Assessment (WSP, 2022) ref: *62516/144769 (Rev A)* reported fill material to variable depths underlying the site to a maximum depth of approximately 3 m below ground surface (bgs). The fill materials were reported to be heterogeneous, brown gravelly sand and brown gravelly clayey sand with common constituents present across the majority of the site. Trace levels of bricks, concrete, tile, glass, metal, in addition to ash and slag waste inclusions were reported in fill materials. Natural soils comprising fine to coarse grained yellow/ white sand was reported beneath the fill soil profile across the site.The site was observed to be generally flat. Evidence of erosion and cracking was not noted. Review of the Department of Land and Water Conservation (1997) 'Acid Sulfate Soil Risk Map 2nd Edition' for Botany Bay indicates that the site is within an area classified as "… no known occurrence of acid sulfate soils (ASS)". The nearest occurrence of identified ASS comprises the sediments of the Alexandra Canal, located approximately 1.3 km to the southwest of the site.

4.2 Potential Impacts and Contamination

According to the most recent invesigtaion conducted by WSP in 2022 (ref: Data Gap Assessment 62516/144769_Rev A), Fill material encountered at the site has, in some instances concentrations of carcinogenic PAH compounds (as B(a)P TEQ), TPHs, lead and asbestos in exceedance of NEPC (2013) ecological criteria and health investigation thresholds for primary schools and children's day care centres consistent with Residential A (residential with accessible soil) (HIL-A) land use criteria, as applicable to the proposed development scenario/land use and adopted validation criteria.

The Data Gap Assessment (WSP, 2022) identified ACM (or asbestos as loose fibre bundles) was observed at a number of sample locations. Additionally, it is understood that asbestos impacted soil generated during the childcare centre and the community and cultural precinct redevelopment works have been placed and capped within the current site boundary. As such, it is considered appropriate to identify the fill material as a whole across the subject site as asbestos impacted. Analysis of natural soil samples indicated contaminated material is generally limited to the fill material overlying the natural soils (where encountered).

4.2.1 Prevailing Wind Conditions and Speeds

Local prevailing wind conditions depend on regional winds impacting the site as well as local site setting and built environment (building-wind interaction). Based on the information provided in Pedestrian Wind Environment Statement by Bligh Voller Nield (BVN) Pty Ltd (NSW) (2021) the local prevailing conditions impacting the site can be summarised as follows:

- Regional wind patterns include the following:

➢ These winds prevail from the north-east, south, and west. These wind directions were determined from an analysis undertaken by Windtech Consultants of recorded directional wind speeds obtained from the meteorological station located at Kingsford Smith Airport by the Bureau of Meteorology

- Site specific influences include the following:

➢ The neighbouring building to the south is expected to provide shielding and reduce the potential of adverse winds, as well as the proposed tree planting along Portman Street. It is recommended that the proposed tree planting along Portman Street be retained and consist of dense evergreen trees.

➢ The north-easterly winds have the potential to impact the eastern entry at Joynton Avenue as they are expected to interact with the south-eastern building corner and accelerate around the corner. It is recommended to retain the porous screening along the northern and eastern building façade as this will assist in disrupting potential side stream wind effects.

4.2.2 Construction

During the construction phase of the works the following potential impacts have been identified for soil:

- Contaminated soils on-site;
- Spills from machinery on site including oils and fuels; and
- Sediment mobilisation during rain events.

4.3 Mitigation Measures

The following mitigation measures would be implemented to avoid, minimise or manage potential impacts to soils, topography and geology:

- Prior to commencement of construction, construction personnel will be inducted on the requirements of the SWMP and ESMP for the proposal, and the erosion and sediment control measures to be implemented in order to minimise the potential for sedimentation to the creek and downstream receiving environment.
- The Environmental Representative to undertake regular inspections of the works and prepare specific Erosion and Sediment Control Plans to suit each area of works.
- Weekly inspections to ensure Erosion and Sediment Controls are in place as per the Environmental Checklist in **Appendix B** of the CEMP.
- Soil containing contaminants will be classified in accordance with the EPA Waste Classification Guidelines and removed from site by a qualified contractor and disposed to an appropriately licensed waste management facility.
- Prior to commencement of construction, construction personnel will be briefed on the procedures to be implemented in the event that unexpected contaminated material is encountered or suspected.
- If suspected contaminated areas are found during construction, work in the immediate vicinity will cease and the area cordoned off as if it were a safety risk.
- All excavated material will be stockpiled and surrounded by a silt fence or bund in accordance with the Erosion and Sediment Control plan and may require re-vegetation with approved grass species if stockpiled for greater than 28 days, until its reuse in backfilling or removal from site.
- Excess excavated material that cannot be used in backfilling will be placed within appropriate receptacles for off-site treatment and/or disposal at an appropriately licensed facility, following Waste Classification.
- Excess excavated material that cannot be used in backfilling will be classified in accordance with the Waste Classification Guidelines (EPA, 2014) prior to any offsite disposal at a suitably licensed waste facility.
- Tracking of soils/sediments from work sites to roadways, footpaths and drainage lines as a result of work vehicle/machinery movement should be minimised.
- Disturbance to ground surfaces and the area of exposed surfaces will be minimised. Disturbed areas will be stabilised as soon as possible and in a progressive manner as works are completed.
- Earthworks will not take place during or after heavy rain when doing so is likely to cause soil erosion or soil structural damage.
- In the event of rain developing during works execution, work site/s will be made secure against soil erosion. This will be undertaken in accordance with the Blue Book.
- Permanent or temporary drainage works will be installed early in the construction program to minimise uncontrolled drainage and associated erosion. 'Clean' surface runoff will be diverted around and away from working areas to prevent erosion and remaining will would be diverted away from work areas and into sediment control devices.
- Sediment control devices such as geofabrics, sediment fences, and bunding will be used to prevent release of sediment-laden run off from the construction site.
- Any surface runoff will be diverted away from areas of soil disturbance.

- Erosion and sedimentation controls will be installed and maintained prior to construction works commencing, in accordance with the Blue Book, and kept in place throughout construction and beyond completion until all surfaces have been fully restored and stabilised.
- All sediment and erosion control devices will be inspected daily (including immediately after rainfall) and will be maintained and repaired as necessary so that they remain effective for the works duration.
- Any sediment that accumulates behind sediment control devices will be cleaned out after every rainfall event and/or when the capacity of the devices is reduced.
- All stockpiles of excavated material will be managed to prevent dust, erosion and sediment runoff.
- Stockpiles will be located on flat ground, outside of the drip line of vegetation, away from drainage lines, and will be contained within sediment control fencing and covered or watered down regularly to prevent wind erosion.
- Stockpiles will be located and monitored to reduce the risk of sediment laden run-off and dust emissions. Stockpiles will be covered if necessary and sedimentation fences installed on the down-slope side.
- Equipment, plant and materials will be situated in designated lay-down areas with bunding where they are least likely to cause erosion. They will not be located within the drip line of trees.
- Spoil will be transported to and from the site via covered trucks. A single designated vehicle path will be utilised to enable the appropriate management of spoil transport.
- Facilities will be installed at entry and exit points to the work site to minimise mud being tracked off site. Any mud that is tracked onto roads will be swept up immediately and as necessary.
- The tyres of work vehicles and machinery will be checked and cleaned as necessary before entering and/or leaving the site to ensure that contaminated soils, weeds or other erodible materials are not transferred into or from the work site.
- Crushed sandstone material will likely be used to construct the permanent access track, to soften the impact of the track on the surrounding environment.
- Access tracks will be monitored and managed for erosion risks during operation of the proposal.

Refer to Southern Sydney Region of Councils (SSROC) Fact Sheet No.8 – Protected Stockpiles for further information and example diagrams for engineering controls to be implemented **(Appendix M** of the main CEMP report).

4.4 Erosion and Sediment Management

The Erosion and Sediment Management Plan may be reviewed in full in Appendix I of this CEMP, Table 1 below presents the erosion and sediment management for the site.

Table 1: Erosion and Sediment Control Plan

Actions	Responsible	Timing
Diversion of uncontaminated runoff around site works as practicable.	Construction Project Manager	Beginning
Work site area perimeter sediment fence is to be constructed prior to the commencement of works.	Construction Project Manager	Beginning
Install temporary sediment trap(s) (e.g. gravel sausages / sand bags) around street stormwater gutters. Existing stormwater entry points in the vicinity of the excavation shall be protected from ingress of materials which may be placed or stockpiled in the vicinity of the excavation.	Construction Project Manager	Throughout

Table 1: Erosion and Sediment Control Plan		
Stockpiles are to be placed in designated areas which can be appropriately bunded using sediment fences, gravel sausages/ sand bags or straw bales on at least the down-slope side.	Construction Project Manager Site workers	Throughout
Stockpiles intended to remain for extended periods, or during inclement weather are to be covered with suitable covering material and anchored with bricks or similar to prevent exposure of the material.	Construction Project Manager	Throughout
Dust control measures such as wetting of stockpiles and/or covering of stockpiles to be used where required. If water spraying is required for site dust suppression, care will be taken to control the quantities of water sprayed so that run-off is not generated.	Construction Project Manager	Throughout
Any soil or mud spilled onto road surfaces or public areas from construction activities should be promptly cleaned.	Construction Project Manager Site workers Haulage	Throughout
Performance Indicators	Responsible	Timing
No evidence of soil mobilising off site into stormwater drains or nearby water bodies.	Construction Project Manager	Throughout
No visible evidence of stockpile erosion, particularly following rainfall events.	Construction Project Manager	Throughout
No visible evidence of soil mobilising off site through onto public roadways / paths.	Construction Project Manager	Throughout
Limited issues identified during the works program	Construction Project Manager	Throughout

4.5 Conclusions and Ongoing Operation

Construction impacts to soils are short-term and considered minor following the implementation of appropriate site-specific controls for the duration of the construction activities. Furthermore, although erosion and sedimentation risks are present across the area, these risks would be reduced through implementation of erosion and sedimentation mitigation measures.

Some maintenance works may involve temporary disturbance of soils and associated erosion risks. Maintenance activities are anticipated to be infrequent and such works would be subject to further environmental assessment and would be carried out in accordance with an approved Environmental Management Plan (EMP), if required.

5. SURFACE AND GROUNDWATER

5.1 Background

The nearest surface water receptor is Shea's Creek approximately 680 m to the northwest of the site which flows into the Alexandra Canal, located approximately 1.4 km to the southwest of the site. The Alexandra Canal flows into the Cooks River, located approximately 4.9 km to the southwest of the site which in turn discharges into Botany Bay located approximately 5.7 km to the southwest of the site.

At the time of the EIS (2018) investigation, groundwater standing water levels (SWLs) within the site were reported between 3.1 m bgs to 4 m bgs, consistent with approximately 15 m AHD in the north

of the site (EIS 2018 MW2 and MW5) and 14 m AHD in the south of the site (EIS 2018 MW9) indicative of groundwater movement at the time of the investigation in a southerly direction.

5.2 Potential Impacts

Potential impacts to surface water and groundwater quality include:

- Sediment produced during construction;
- Sedimentation of downstream systems;
- Hazardous products such as fuels, lubricants, grease and other chemicals required for construction can be released into the water;
- Shallow groundwater may be intercepted and require management due to water being saline, acidic and/ or polluted; and
- Dewatering excavations and environmental implications.

5.3 Mitigation Measures

There is the potential for some mobilisation of sediments into the Shea's Creek during construction. However, it is anticipated that impacts would be minor, short term and localised as flows from the creek would dilute and disperse sediment.

Potentially hazardous products such as fuels, lubricants, grease and other chemicals required for construction would be contained within appropriately bunded areas within construction compounds and in small volumes. Refuelling activities would be restricted to bunded areas within construction compounds. As such, the risk of surface water (and groundwater) contamination during the construction phase from spills is anticipated to be low.

Groundwater encountered during excavation would be tested to determine whether it is of an acceptable water quality (i.e. within set water quality limits) to be released back into the creek. If the water quality of groundwater is found to exceed the criteria, the Delivery Contractor would dispose of the water via transfer to an appropriately licensed offsite facility.

5.4 Off-Site Flows

Dependant on the location of the retained water, discharge may be directed to the adjacent Shea's Creek or the stormwater drains are located throughout the infrastructure provided to the site and adjoining on Portman Street, Joynton Avenue and future Zetland Avenue road reserve. A detention basin has not been considered necessary for the proposed works.

All surface water should be diverted away from excavation areas during construction works and prevented from accumulating in areas surrounding any retaining structures, footings or the base of excavations. Any collected surface water should be discharged into a suitable Council-approved drainage system and no adversely impact downslope surface and subsurface conditions.

Dewatering will involve the pumping-out of collected water which has made its way into any excavation by either rainfall or seepage of interface water. There are three options for management of water onsite:

- Pump it into the settling tank and upon assessment as being suitably clear discharge into the stormwater outlet; or
- Pump it to the sewer with prior arrangement of a trade waste agreement (TWA) set-up with Sydney Water; or
- Have it collected by a liquid waste company for disposal at a licensed treatment facility.

All site discharges should be passed through a filter material prior to release. Sump and pump methods will generally be suitable for collection and removal of accumulated surface water within any excavations.

If groundwater is to be encountered, sump and pump methods are considered to be appropriate for dewatering during construction. Adequate drainage behind retaining structures should be provided. Any collected waste stormwater or groundwater should also be tested prior to discharge to ensure contaminant levels (where applicable) are appropriate for the nominated discharge location.

The objective is to comply with the POEO Act in ensuring that construction activities minimise aesthetic impact, health impact and associated nuisance to surrounding areas from airborne dust.

Refer to the SSROC Fact Sheet No.4 – Excavation Pump-out (attached in **Appendix M**). For further information and diagrams showing suggested methods for establishing engineering for settling muddy water.

5.4.1 De-Watering Criteria

In the event that off-site discharge is required the Hutchinson Environmental policy has prescribed a Minimum Analysis Suite for the discharge of water from site:

- Total Recoverable Hydrocarbons (C_6-C_{40}) (TRH);
- Benzene, Toluene, Ethylbenzene, Xylenes, Naphthalene (BTEXN);
- Poly-aromatic Hydrocarbons (PAH);
- pH;
- Total Suspended Solids (TSS); and
- Turbidity.

Discharge criteria has been derived from the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC & ARMCANZ, 2000). Criteria is based on a moderately disturbed ecosystem (95% Trigger Values) as the Brickmakers Creek in multiple sections has been re-surface with concrete to form a canal. Applicable criteria are presented in Table 2.

Table 2: Discharge Water Criteria

Analyte	Criteria (mg/L)
Benzene	950
Ethylbenzene	Not Applicable
Toluene	Not Applicable
Xylenes	550
Naphthalene	16
pH	6.5-8.5
TSS	50

5.5 Wet Weather Mitigation and Management

During wet-weather, the mitigation and management measures presented in Table 3 are to be implemented.

Table 3: Wet-Weather Mitigation and Management			
Mitigation/Measure	**Implementation Stage**	**Responsibility**	**Site Use Phase**
Temporary works such as hardstand areas and access tracks are to be designed and constructed to withstand flooding.	Project manager Site Manager	Project Manager Site Manager	Construction
Minimising the extent of obstructions within the flood prone areas as far as practicable at all times during construction.	Project manager Site Manager	Project Manager Site Manager	Construction Operation
Removing construction infrastructure and equipment from the flood prone areas in the event of a wet-weather event to minimise both the risk of damage to infrastructure /equipment and the risk of flood impacts on properties.	Project manager Site Manager	Project Manager Site Manager	Construction Operation
Secure objects that are likely to float and cause damage.	Construction	Project Manager	Construction Operation
Ensure construction equipment (or excess material) are removed from the low areas especially around creek areas and secured.	Construction	Site Manager	Construction Operation
Relocate waste containers, chemicals and dangerous goods above the potential flood line and secured.	Construction	Site Manager	Construction Operation
Locate plant and equipment on high ground when high rainfall/flooding is expected.	Per event	Site Manager Site personnel	Construction
Amenities wastewater is transported off-site by a licenced operator to a licenced disposable facility (if applicable).	Construction	Project Manager	Construction
Where minor flooding occurs in the works area, set-up temporary diversion or pumping of low flows around the works area.	Per event	Site Manager	Construction

5.6 Stormwater and Flood Management

Refer to the attched Stormwater Drainage Plan prepared by Stantec for the location of stormwater drainage line, existing stormwater pit, existing easement drain and new stormwater pit to be constructed.

1 in 1-year ARI and 1 in 5-year ARI flood events and are to be managed under this section. Flood levels for a 1 in 100-ARI event are considered to be between 0.5-1m, in this instance the following additional measures are to be taken.

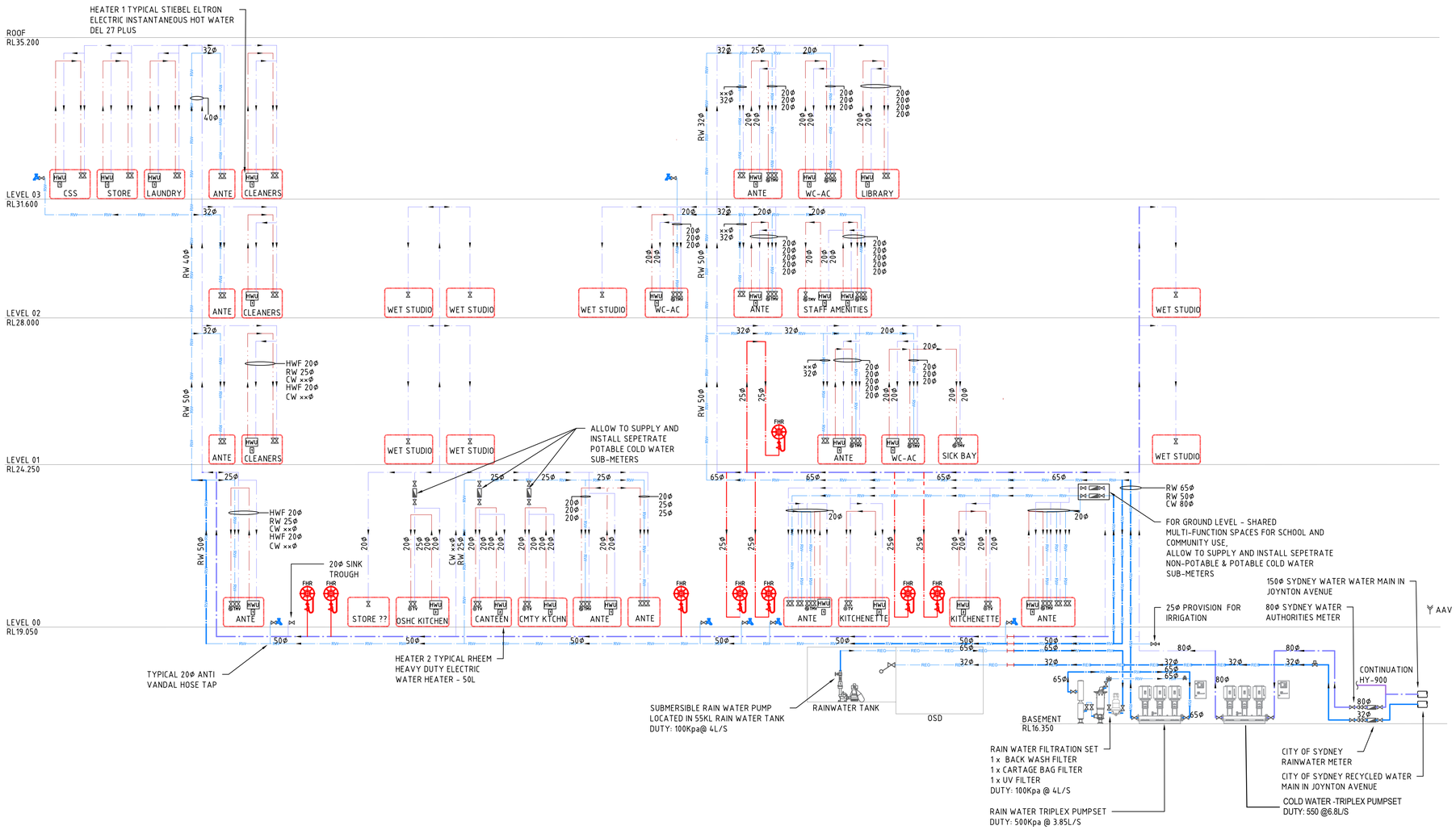
Further consideration of how to manage stockpiles, material laydown and chemical storage with respect to floodwater would be undertaken during detailed design. Refer to SSROC Fact Sheet (in **Appendix M**) No.10 – Protected Waste Management and Chemical Storage for further information and example diagrams.

Table 4: 1in 100-ARI Flood Management and Response			
Mitigation/Measure	**Implementation Stage**	**Responsibility**	**Site Use Phase**
Turn off electricity, secure generators and secure gas cylinders when flooding is expected.	Per event	Project Manager Site Manager	Construction Operation
Notification			
Declaring the site closed.	When SES declare an imminent flood	Project Manager	Construction Operation
Declaring the site reopened.	When SES have given the all clear	Project Manager	Construction Operation
Evacuation			
No attempt should be made to enter or cross any flood waters that is above a minor flood level, or where the flood inundation level is not known	During flood event	All personnel	Construction Operation
The emergency exit route to be taken before flood waters rise is to exit to the compound. Site sheds will be utilised as a refuge point for high flood waters.	Before flooding of area	All personnel	Construction

6. CONCLUSIONS

Provided that the recommended management and mitigation measures are applied during construction and appropriate erosion and sediment control plans are implemented, it would be unlikely that the proposal would be a source of water pollution. Therefore, water quality impacts to the Brickmakers Creek and the downstream Georges River environment are expected to be minor.

NOTE:
1. PROPOSED PIPE SIZE INDICATIVE ONLY. ALLOW TO CONFIRM FINAL PIPE SIZE BY CONTRACTOR
2. ALLOW TO SUPPLY & INSTALL VANDAL-PROOF HOSE TAPS AS REQUIRED. FINAL LOCATION & QUANTITY TO BE CONFIRMED BY CONTRACTOR.



REV	DESCRIPTION	DRAWN	APP'D	DATE
02	REVISED 70% D&C TENDER ISSUE	YPZ	ALM	25.06.21
01	PRESSURE SERVICES SCHEMATIC	FMP	ALM	23.02.21

CONSULTANT

Stantec

ARCHITECT/CLIENT

PROJECT

GREEN SQUARE INTEGRATED COMMUNITY FACILITY AND SCHOOL

TITLE

PRESSURE SERVICES SCHEMATIC

TENDER

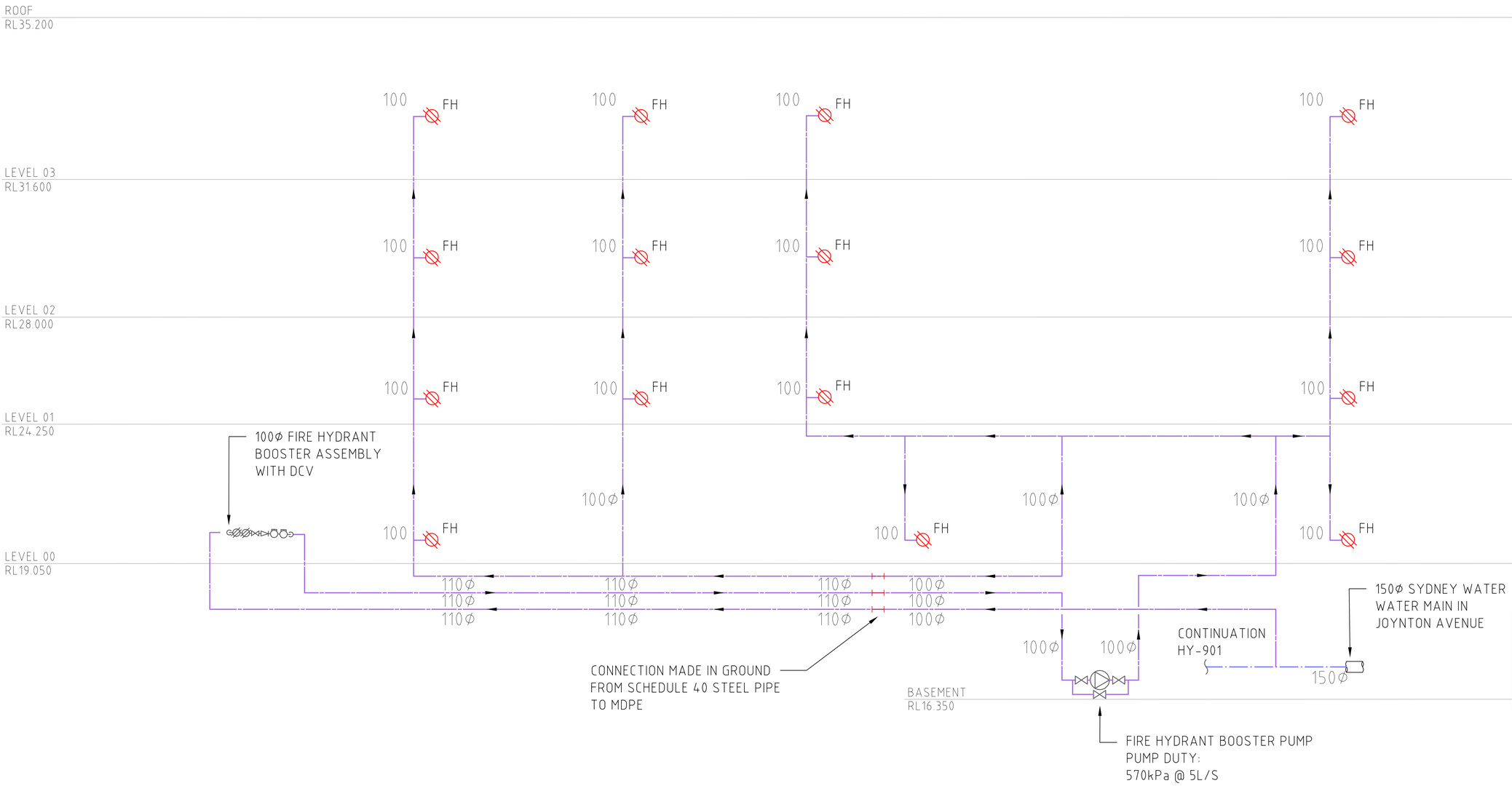
NOT FOR CONSTRUCTION

SCALE @ A1: NTS

HYDRAULIC SERVICES

PROJECT No	DRAWING No	REV
46826	HY-905	02

NOTE:
1. PROPOSED PIPE SIZE INDICATIVE ONLY. ALLOW TO CONFIRM FINAL PIPE SIZE BY CONTRACTOR



REV	DESCRIPTION	DRAWN	APP'D	DATE
02	REVISED 70% D&C TENDER ISSUE	YPZ	ALM	25.06.21
01	PRESSURE SERVICES SCHEMATIC	FMP	ALM	23.02.21

CONSULTANT | ARCHITECT/CLIENT

Stantec

PROJECT
GREEN SQUARE INTEGRATED COMMUNITY FACILITY AND SCHOOL

TITLE
HYDRANT SCHEMATIC

TENDER
NOT FOR CONSTRUCTION

SCALE @ A1: NTS

HYDRAULIC SERVICES

PROJECT No	DRAWING No	REV
46826	HY-900	02

NOTE:
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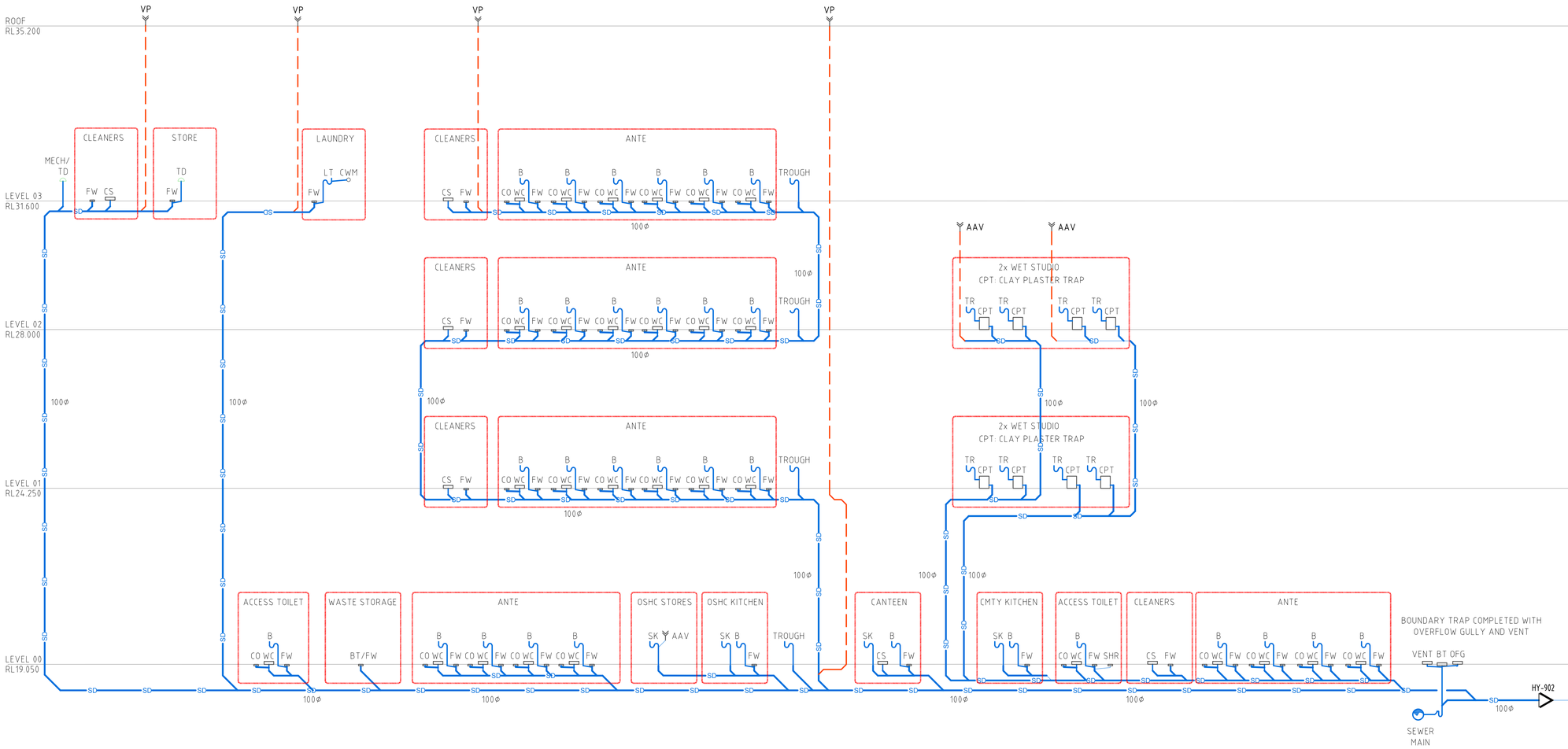


REV	DESCRIPTION	DRAWN	APP'D	DATE
02	REVISED 70% D&C TENDER ISSUE	YPZ	ALM	25.06.21
01	PRESSURE SERVICES SCHEMATIC	FMP	ALM	23.02.21

CONSULTANT

ARCHITECT/CLIENT

Stantec

PROJECT

GREEN SQUARE INTEGRATED COMMUNITY FACILITY AND SCHOOL

TITLE

DRAINAGE SCHEMATIC
BUILDING - SOUTH
SHEET 1 OF 2

TENDER

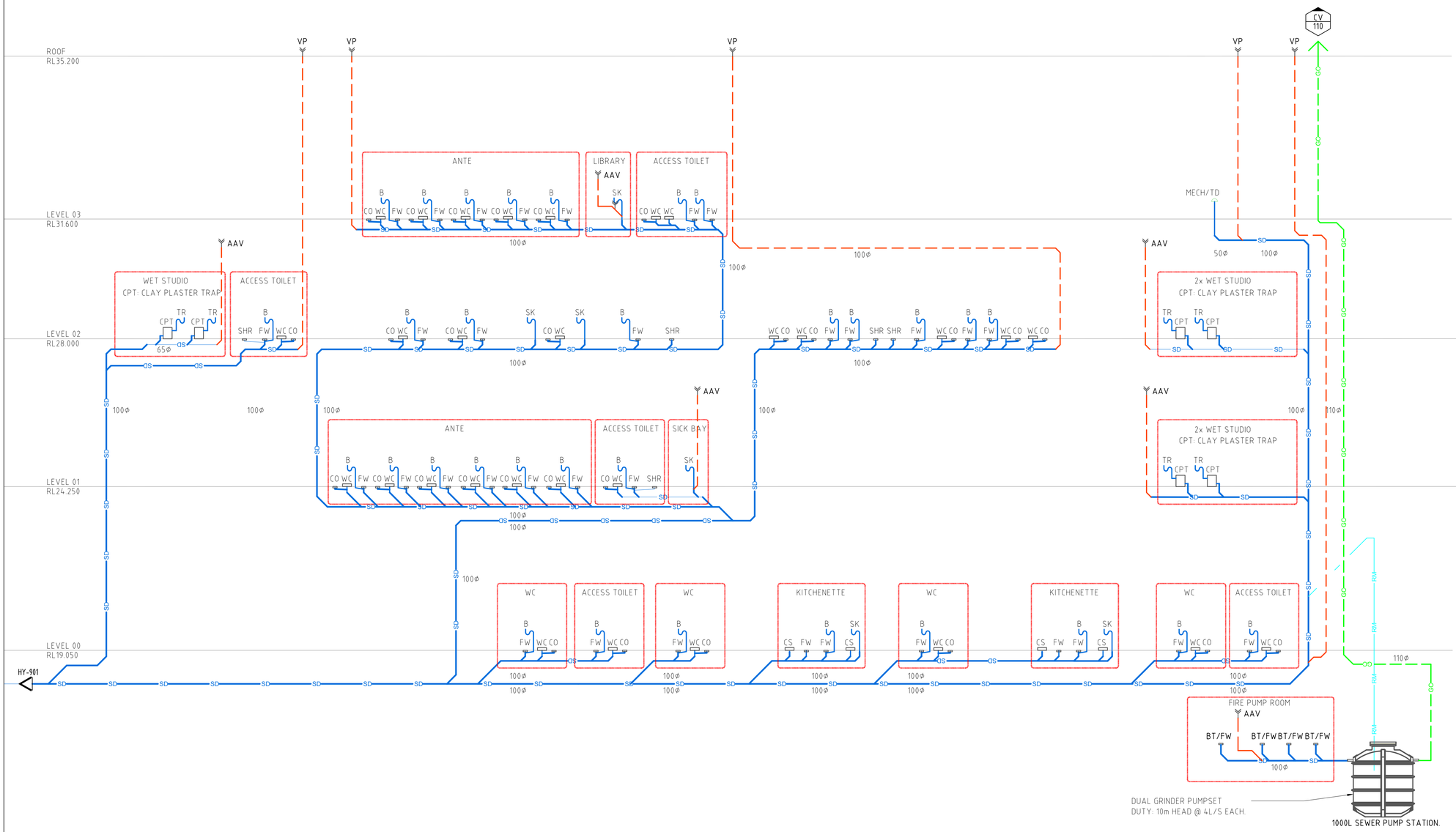
NOT FOR CONSTRUCTION

SCALE @ A1: NTS

HYDRAULIC SERVICES

PROJECT No	DRAWING No	REV
46826	HY-901	02

NOTE:
1. PROPOSED PIPE SIZE INDICATIVE ONLY. ALLOW TO CONFIRM FINAL PIPE SIZE BY CONTRACTOR



REV	DESCRIPTION	DRAWN	APP'D	DATE
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01	PRESSURE SERVICES SCHEMATIC	FMP	ALM	23.02.21

CONSULTANT

ARCHITECT/CLIENT

Stantec

PROJECT

GREEN SQUARE INTEGRATED COMMUNITY FACILITY AND SCHOOL

TITLE

DRAINAGE SCHEMATIC
BUILDING - NORTH& EAST
SHEET 2 OF 2

TENDER

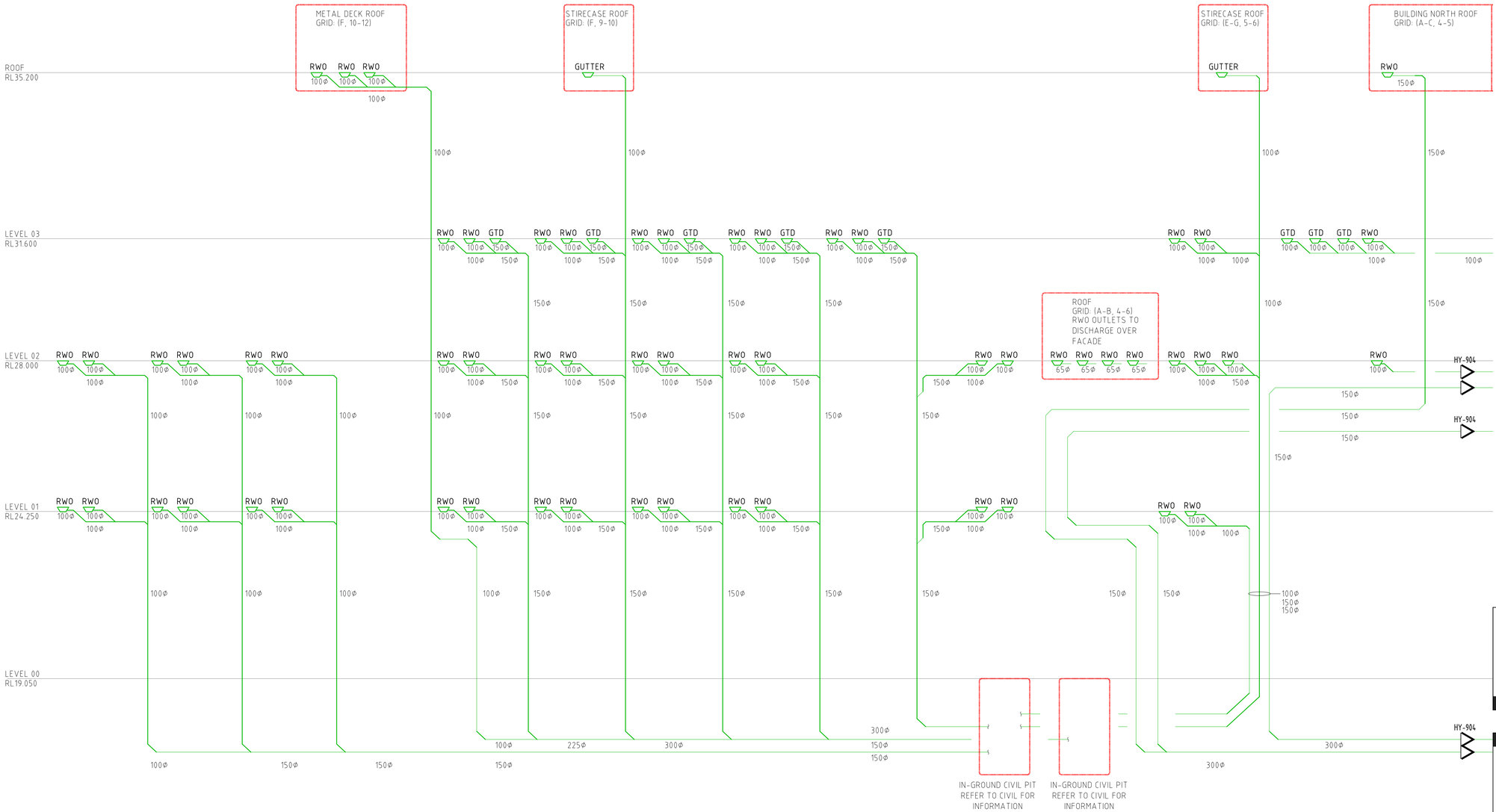
NOT FOR CONSTRUCTION

SCALE @ A1: NTS

HYDRAULIC SERVICES

PROJECT No	DRAWING No	REV
46826	HY-902	02

NOTE:
1. PROPOSED PIPE SIZE INDICATIVE ONLY. ALLOW TO CONFIRM FINAL PIPE SIZE BY CONTRACTOR



REV	DESCRIPTION	DRAWN	APP'D	DATE
02	REVISED 70% D&C TENDER ISSUE	YPZ	ALM	25.06.21
01	PRESSURE SERVICES SCHEMATIC	FMP	ALM	23.02.21

CONSULTANT

ARCHITECT/CLIENT

Stantec

PROJECT

GREEN SQUARE INTEGRATED COMMUNITY FACILITY AND SCHOOL

TITLE

STORMWATER DRAINAGE SCHEMATIC
BUILDING - SOUTH
SHEET 1 OF 2

TENDER

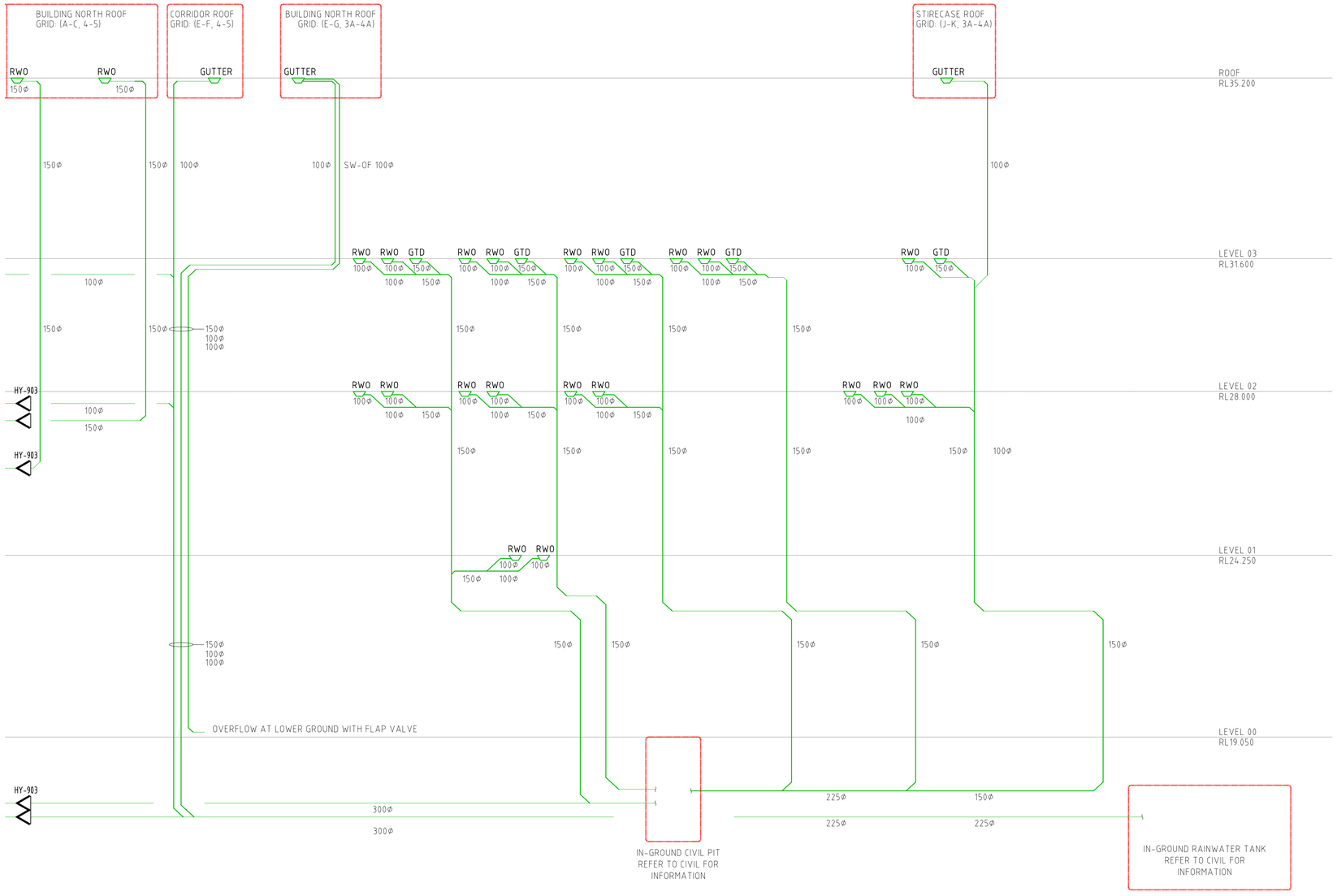
NOT FOR CONSTRUCTION

SCALE @ A1 NTS

HYDRAULIC SERVICES

PROJECT No	DRAWING No	REV
46826	HY-903	02

NOTE:
1. PROPOSED PIPE SIZE INDICATIVE ONLY. ALLOW TO CONFIRM FINAL PIPE SIZE BY CONTRACTOR



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CONSULTANT

Stantec

ARCHITECT/CLIENT

PROJECT

GREEN SQUARE INTEGRATED COMMUNITY FACILITY AND SCHOOL

TITLE

STORMWATER DRAINAGE SCHEMATIC
BUILDING - NORTH & EAST
SHEET 2 OF 2

TENDER

NOT FOR CONSTRUCTION

SCALE @ A1: NTS

HYDRAULIC SERVICES

PROJECT No	DRAWING No	REV
46826	HY-904	02

Construction Environmental Management Plan

Hutchinson Builders

GSPS

APPENDIX H: CONSTRUCTION WASTE MANAGEMENT PLAN

1. PURPOSE

To address the requirements of the Development Consent in reference to a Construction Waste Management Plan for construction of the Green Square Integrated Community Facility and School at 3 Joynton Avenue Zetland NSW (the "site").

2. SCOPE

Applies to all Hutchinson Builders work-related activities, workplaces, employees, contractors, subcontractors and visitors associated with the Project.

3. PROCEDURE

This Waste and Resource Management Procedure details how Hutchinson Builders will undertake works associated with the project in accordance with the waste management hierarchy.

3.1 Waste Types and Quantities

The waste types and quantities expected to be generated as a result of the construction of the project are detailed in this procedure. Proposed treatment methods for each waste type have also been indicated. Waste likely to be generated during construction stages of the project includes spoil, concrete, steel and general solid waste. Detailed waste management measures have been included Waste Management Plan prepared by Elephants Foot Recycling Solutions (July 2021).

3.2 Waste and Resource Recovery Measures

The following measures will be implemented where possible to minimise waste generation and maximise resource recovery:

- Waste refuse bins would be provided on site and will be clearly marked with signage to assist waste segregation. This may include: concrete and cement, paving materials, timber, steel, glass, plastic, paper products, etc.
- Ensure suppliers pick up packaging for recycling or reuse, e.g. pallets.
- Encourage suppliers to use sustainable/ recyclable packaging, e.g. metal strapping instead of shrink wrap, paper packaging as opposed to plastic, shredded paper as opposed to foam.
- Testing of excavated material for contamination before disposal.
- Ensure clear segregation of clean material or fill from contaminated fill or materials.
- Ensure no green fill waste, tyres, steel, petroleum products or containers are sent to landfill, but recycled by supplier, recovery centres or councils.
- Use waste contractors that differentiate recycled and landfilled waste in their invoicing and provide volumes and weight for accurate waste reporting.
- Appointing person(s) to monitor waste management, segregation and supervise subcontractors.
- Ensure waste minimisation strategies and reporting requirements are incorporated into subcontractor contracts.
- Waste unable to be reused or recycled would be classified and disposed of in accordance with EPA Waste Classification Guidelines 2014.
- Disposing all waste that cannot be recycled at an appropriate EPA licensed or Council approved waste facility.

- Worksites would be kept in a clean and tidy condition at all times.
- Portable toilets would be provided on site with waste removed by an appropriately licensed contractor.
- Contaminated waste would be separated from non-contaminated waste and removed to a licensed waste disposal depot.
- Bunds for any chemical storage would be provided at not less than 110% of the chemical storage tank sizes as per Australian Standards.
- Material Safety Data Sheets would be available on site.
- Risk assessments would be undertaken by the Contractor prior to construction to identify and manage environmental and safety risks for all works. These would be reviewed and revised (as required) during the construction phase to ensure they remain relevant.
- Use recycled products or a suitable substitute where they exist (i.e. recycled concrete, crusher dust for pipe bedding, and fly ash as a substitute for sand in concrete).

3.3 Hazardous and Special Waste Management

An existing Asbestos Management Plan (AMP) has been completed for the proposed works at the site ref: *J176343 - Asbestos Management Plan - Greensquare Public School_V1 (Greencap, 2022)*, refer to **Attachment A** for a copy for the AMP. The AMP provides the following Asbestos removal/disturbance procedures (pg 8)

- *All asbestos disturbance works to be supervised or carried out by licensed Class A (friable and non-friable) SafeWork NSW Licensed Contractor;*
- *Notify SafeWork NSW and prepare a site-specific ARCP prior to any asbestos removal works being completed;*
- *Works area to be isolated with appropriate barricade fencing (e.g. fence panels) and signage;*
- *Un-authorised personnel are not permitted to enter the isolated work area;*
- *Air monitoring to be carried out for the duration of the works involving the disturbance of asbestos;*
- *Licensed Asbestos Assessor to monitor asbestos related works during removal/disturbance to ensure compliance with the AMP (if engaged for fulltime site supervision);*
- *Decontamination unit (friable – 5 stage unit) or decontamination area (non-friable only) to be installed;*
- *Appropriate personal protective equipment (PPE) to be worn by all personnel entering work area as described in Section 5.3 of the AMP;*
- *Light water spray to be used as required to repress possible generation of airborne fibres/dust;*
- *Impacted stockpiles to be covered in accordance with Section 5.5 of the AMP;*
- *All tools, plant and equipment used in the removal area will be decontaminated follow use in the asbestos areas;*
- *Removal of soils/rubble by trucks are to be conducted in accordance with Sections 5.2 and 5.6 of the AMP;*
- *Contaminated soil to be disposed of at licensed asbestos waste facility in accordance with Section 5.2 of the AMP; and*
- *Truck wheels to be cleaned prior to leaving site.*
- *All work shall be carried out in accordance with:*
  - the SafeWork Australia document How to Safely Remove Asbestos: Code of Practice 2019 made under section 274 of the Work Health and Safety Act 2011.
  - Protection of the Environment Operations (POEO) Act;

- POEO Waste Regulation; and
- NSW EPA *Waste Classification Guidelines (NSW EPA, 2014).*

3.4 Reporting

The type and quantity of resources and/or waste procured, recycled, reused, avoided and generated on site or offsite as part of the project will be reported as part of quarterly environmental performance reporting.

Appendix A: Waste Types and Expected Quantities			
Waste Types	**Classification**	**Quantities/ Volumes**	**Proposed Reuse / Recycling / Disposal Method**
Demolition/Site Clearing			
Vegetation (logs, mulched timber, weeds)	General Solid (non-putrescible)	Unknown	Native Vegetation – Reuse as Biodiversity measures such as Course Woody Debris (CWD) or as mulch onsite Weeds – Offsite disposal at a licensed facility
Concrete, asphalt and gravel	General Solid (non-putrescible)	Unknown	Offsite recycling
Scrap metal	General Solid (non-putrescible)	Unknown	Offsite recycling
Excavation			
VENM (Virgin Excavated Natural Material)	General Solid (non-putrescible)	Unknown	Beneficial reuse on-site. Balance cut and fill earthworks, where possible, to optimise reuse on the project
Excavated natural material (ENM) that complies with the ENM exemption	General Solid (non-putrescible) during transit and ENM when land applied	Unknown	Beneficial reuse on-site. Balance cut and fill earthworks, where possible, to optimise reuse on the project
Potentially Contaminated Soils	Classification based on soil tests carried out pre-construction and in accordance with the EPA 2014 - Waste Classification Guidelines.	~2,065m^3	Offsite disposal at a licensed facility
Building / Construction Waste			
Steel reinforcing	General Solid (non-putrescible)	Unknown	Offsite recycling
Conduits and pipes	General Solid (non-putrescible)	Unknown	Offsite recycling

Appendix A: Waste Types and Expected Quantities			
Waste Types	**Classification**	**Quantities/ Volumes**	**Proposed Reuse / Recycling / Disposal Method**
Concrete (solids and washouts) and asphalt	General Solid (non-putrescible)	Unknown	Crushed and used as backfill or as road base
Timber formwork	General Solid (non-putrescible)	Unknown	Reuse onsite where possible or off site recycling
Packaging materials, including wood, plastic, cardboard and metals	General Solid (non-putrescible)	Unknown	Off-site recycling
Empty oil and other drums	Hazardous Waste if the containers were previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) from which residues have not been removed by washing or vacuuming	Unknown	Transport to comply with the transport of Dangerous Goods Code applies in preparation for offsite recycling.
Pesticides, herbicides, spill cleans ups, paints and other chemicals	Liquid waste	Unknown	Offsite disposal at a licensed facility
Metals and bulk electrical cabling	General Solid (non-putrescible)	Unknown	Off-site recycling
General Waste from Compounds			
Tyres	Special waste	Unknown	Offsite recycling
Waste generated by the maintenance of equipment including air and oil filters and rags	General Solid (non-putrescible)	Unknown	Offsite disposal at a licensed facility
Oil, grease, fuel, chemicals and other fluids	Liquid waste	Unknown	Offsite recycling or disposal at a licensed facility

Appendix A: Waste Types and Expected Quantities			
Waste Types	**Classification**	**Quantities/ Volumes**	**Proposed Reuse / Recycling / Disposal Method**
Batteries	Hazardous waste	Unknown	Offsite recycling
Domestic waste generated by workers	General Solid (putrescible)	Unknown	Offsite disposal at a licensed facility / Onsite composting
Sewage sludge (no free liquids)	General Solid (putrescible)	Unknown	Offsite disposal at licensed facility
Liquid sewage	Liquid waste	Unknown	Offsite disposal at a licensed facility
Office Waste			
Paper, cardboard and plastic	General Solid (non-putrescible)	Unknown	Offsite recycling
Glass bottles and aluminium cans	General Solid (non-putrescible)	Unknown	Offsite recycling
Ink cartridges	General Solid (non-putrescible	Unknown	Offsite recycling

Construction Waste Management Plan

Hutchinson Builders

Green Square Public School

Attachment A: Greencap Asbestos Management Plan

GREENCAP
Going Further in Managing Risk

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ASBESTOS MANAGEMENT PLAN

July 2022
J176343

HUTCHINSON BUILDERS

3 Joynton Avenue, Zetland NSW

C123836: ZZ

Document Control

Document Quality Management Details		
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Site Details:	3 Joynton Avenue, Zetland NSW	
Project Number:	J176343	
Client Name:	Hutchinson Builders	
Client Number:	C123836	
Signatures:	Prepared By:  Dr. Brad Zhao **Senior Environmental Consultant - CLME**	Authorised By:  Matthew Barberson **Team Manager - NSW**

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1	6/07/2022	**Dr.** Brad Zhao	**Matthew Barberson**

Document Circulation

No of Copies	Type	Customer Name	Position & Company
1	Electronic	John Koumoukelis	Hutchinson Builders

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All and any Services proposed by Greencap to the Client were subject to the Terms and Conditions listed on the Greencap website at: https://www.greencap.com.au/terms-conditions Unless otherwise expressly agreed to in writing and signed by Greencap, Greencap does not agree to any alternative terms or variation of these terms if subsequently proposed by the Client. The Services were carried out in accordance with the current and relevant industry standards of testing, interpretation and analysis. The Services were carried out in accordance with Commonwealth, State, Territory or Government legislation, regulations and/or guidelines. The Client was deemed to have accepted these Terms when the Client signed the Proposal (where indicated) or when the Company commenced the Services at the request (written or otherwise) of the Client.

The services were carried out for the Specific Purpose, outlined in the body of the Proposal. To the fullest extent permitted by law, Greencap, its related bodies corporate, its officers, consultants, employees and agents assume no liability, and will not be liable to any person, or in relation to, any losses, damages, costs or expenses, and whether arising in contract, tort including negligence, under statute, in equity or otherwise, arising out of, or in connection with, any matter outside the Specific Purpose.

The Client acknowledged and agreed that proposed investigations were to rely on information provided to Greencap by the Client or other third parties. Greencap made no representation or warranty regarding the completeness or accuracy of any descriptions or conclusions based on information supplied to it by the Client, its employees or other third parties during provision of the Services. Under no circumstances shall Greencap have any liability for, or in relation to, any work, reports, information, plans, designs, or specifications supplied or prepared by any third party, including any third party recommended by Greencap. The Client releases and indemnifies Greencap from and against all Claims arising from errors, omissions or inaccuracies in documents or other information provided to Greencap by the Client, its employees or other third parties.

The Client was to ensure that Greencap had access to all information, sites and buildings as required by or necessary for Greencap to undertake the Services. Notwithstanding any other provision in these Terms, Greencap will have no liability to the Client or any third party to the extent that the performance of the Services was not able to be undertaken (in whole or in part) due to access to any relevant sites or buildings being prevented or delayed due to the Client or their respective employees or contractors expressing safety or health concerns associated with such access.

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The Report is provided for the exclusive use of the Client and for this Project only, in accordance with the Scope and Specific Purpose as outlined in the Agreement, and only those third parties who have been authorized in writing by Greencap. It should not be used for other purposes, other projects or by a third party unless otherwise agreed and authorized in writing by Greencap. Any person relying upon this Report beyond its exclusive use and Specific Purpose, and without the express written consent of Greencap, does so entirely at their own risk and without recourse to Greencap for any loss, liability or damage. To the extent permitted by law, Greencap assumes no responsibility for any loss, liability, damage, costs or expenses arising from interpretations or conclusions made by others, or use of the Report by a third party. Except as specifically agreed by Greencap in writing, it does not authorize the use of this Report by any third party. It is the responsibility of third parties to independently make inquiries or seek advice in relation to their particular requirements and proposed use of the site.

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This Report should be read in whole and should not be copied in part or altered. The Report as a whole set outs the findings of the investigations. No responsibility is accepted by Greencap for use of parts of the Report in the absence (or out of context) of the balance of the Report

Asbestos Management Plan

Hutchinson Builders

Green Square Public School – 3 Joynton Avenue, Zetland NSW

Table of Contents

1 Introduction and Scope

Greencap Pty Ltd (Greencap) was engaged by Hutchinson Builders ('the Client'), to develop an Asbestos Management Plan (AMP) for scheduled excavation/ remediation work at 3 Joynton Avenue, Zetland NSW (the site). The site location and extent of the Site is presented in **Figure 1** at the end of this report. The site is legally identified as Part Lot 2 in Deposited Plan (DP) 1174641 and has an area of approximately 4983 m^2.

This AMP will detail relevant site excavation controls and safety procedures to prevent contaminated soil exposure risks during remediation/ earthworks at the site. This AMP details the roles, responsibilities and requirements for management of excavation and any other works which involve disturbance of soils containing asbestos and to avoid disturbance of capping layer implemented during the remediation stage.

The intent of this AMP's technical scope is to describe systems to ensure that excavation works involving disturbance or the removal of the asbestos-containing material, are performed to a high standard and that precautions and controls are maintained throughout the work to protect workers, occupants of adjacent areas and visitors to site, from asbestos exposure.

This document should be used as guidance only. The Licensed Asbestos Removal Contractor (LARC) engaged to carry out the work, should review this asbestos AMP, and prepare an Asbestos Removal Control Plan (ARCP) prior to commencement. The LARC shall make full provision for all project-related works, including management of excavations, dust suppression, waste removal/disposal and any other works to be conducted.

This AMP was prepared based on site investigation works which assessed the nature and extent of asbestos in subsurface materials based on a soil sampling and analysis program. The details of this investigation are summarised in the Site Remediation Action Plan (Ref: 58719/129939 – Green Square Public School Remediation Action Plan, September 2020_Rev1)

2 Site Earthworks and Contaminated Soils

Greencap understands that a series of environmental investigations were conducted for the site, findings of which were summarised in the Remediation Action Plan (JBS&G 2020). Greencap was provided with the following relevant documents to establish the scope of this document:

- Remediation Action Plan (JBS&G 2020); and
- Interim Audit Advice (RAMBOLL 2020).

Based upon the investigation results, asbestos (both bonded and asbestos fines (AF)/ fibrous asbestos (FA)) was present in fill material at a number of sample locations which exceeded the site criteria for primary school land use:

- Asbestos in soil at sample locations BH32 (0.5-0.8), TP308 (0-0.3), TP316 (0.3-0.5), TP317 (0.3-0.5); and
- SS2 and JF1 on the ground surface.

The proposed redevelopment comprises the remediation of the abovementioned asbestos impacted area and construction of the Green Square Public School. The ground level extent of the proposed development is identified in **Figure 1**. Additionally, a 276 m^2 parcel of land located to the eastern portion of the former Naomi Wing Rehabilitation Building is proposed to be dedicated as part of development works to the Waranara Early Education Centre located to the southeast of the site for playground use following building demolition and site remediation.

All asbestos contaminated soils are to be capped on-site as per the RAP (2020). Should-off-site disposal is required due to various reasons (levelling restrictions, identification of other contaminants that are not

suitable to be capped on-site, or similar), waste classification will be required (as per NSW EPA 2014) prior to any off-site disposal.

All excavated soil materials will be considered to contain, or potentially contain asbestos, due to random occurrence of asbestos in fill soil and mixing of fill and underlying natural soils along the site during excavation.

This document is to be read in conjunction with the works-specific Asbestos Removal Control plan (ACRP) to be prepared by the engaged Class-A asbestos removalist contractor.

As the above-mentioned works will require disturbance of asbestos-containing materials, site management controls are to be implemented to meet legislative requirements and to ensure that any potential disturbance of the asbestos contaminated soils is appropriately managed to a high standard. Site precautions are maintained throughout the work to protect workers, occupants of adjacent areas, and visitors to site, from exposure to airborne asbestos.

The contractor's Asbestos Removal Control Plan (ARCP) Safe Work Method Statements (SWMS), Job Safety Assessments (JSA) and other applicable procedures should be prepared prior to any works involving disturbance, or potential disturbance, of the asbestos contaminated soils.

3 Overview of Roles and Responsibilities

3.1 Scope of Work

The scope of work in this AMP provides:

- Details of roles and responsibilities;
- Methodologies for protecting workers during excavation works and construction/installation works;
- Personal protective equipment (PPE), decontamination and surface clearance inspection requirements;
- Safe handling procedures and protocols to minimise potential asbestos exposure to personnel/workers involved in the excavation and construction works, and to the general public;
- Details of 'make safe', remedial and reinstatement works for excavation works. The remedial/make safe scope pertains to the above-mentioned scope of works only. In the event that future excavation or remedial works are scheduled for the site, management options will be discussed by stakeholders (Hutchinson Builders, Consultant, contractor).

3.2 Licensed Asbestos Removal Contractor Work Procedures

The following broadly identifies the duties of the Licensed Asbestos Removal Contractor (LARC) for the proposed project:

- Preparation of Asbestos Removal Control Plan (ARCP), Safe Work Method Statements (SWMS), Job Safety Assessments (JSA) and any other applicable procedures;
- Provide copies of current license (the site requires a Class A asbestos removal contractor) and insurances, including a Friable Asbestos Removal License and Public Liability and Worker's Compensation Insurances;
- Notification of asbestos removal to the relevant Regulator (SafeWork NSW);
- Asbestos work site establishment and exclusion zones (i.e. installation of appropriate signage etc.);
- Excavation/removal of asbestos materials under controlled conditions;
- Compliance with the Licensed Asbestos Assessor (LAA)/ Hygienist requirements (see below);
- Excavation management, transportation and disposal of asbestos waste to a licensed waste management facility in accordance with applicable legislation, standards and guidelines; and
- Compliance with this AMP and all legislative and Hygienist/ LAA requirements for the project.

3.3 Licensed Asbestos Assessor (Consultant / Hygienist)

All site personnel including the LARC will be required to meet the hygiene requirements on the project. A Hygienist/Licensed Asbestos Assessor (LAA) is to be appointed to oversee all controls and works within the areas impacted by asbestos. As the site requires a Class A asbestos removal contractor, the hygienist

overseeing works within this site boundary will be required to be a Licensed Asbestos Assessor (LAA) or competent Environmental Consultant.

The works to be carried out by the Hygienist/Licensed Asbestos Assessor (LAA) are summarised below:

- Inspection of the asbestos safe work controls and procedures prior to commencement of the excavation / removal works;
- Undertaking control asbestos fibre air monitoring during excavation, trenching/installation and removal works surrounding the working area. For all asbestos removal requiring a Class A asbestos removal licence, an air monitoring program must be implemented to ensure the control measures do not release airborne asbestos fibres. Clearance fibre air monitoring is to be undertaken within the removal work areas following completion of removal works; and
- Conducting visual inspections of works and excavation areas and providing asbestos clearance reports.

The hygienist/LAA has the authority to stop works if the work is not being carried out in accordance with the contract, the WHS Regulation, SafeWork NSW Codes of Practice and other applicable guidelines or if elevated air monitoring results are obtained. The hygienist/LAA may also assist in conducting inductions, preparation of procedures and provision of risk advice relating to the management of asbestos materials on the site.

4 Asbestos Materials Removal Procedures

The following sections provide a staged, step by step approach for the establishment of controlled conditions for excavations and the removal of material that contains asbestos. Procedures must be in accordance with the following *Codes of Practice:*

- How to Safely Remove Asbestos (SafeWork NSW, 2020);
- How to Manage and Control Asbestos in the Workplace (SafeWork NSW 2020); and
- Managing Asbestos in or on Soil (WorkCover NSW, 2014).

During site establishment and setting-up activities, an exclusion (buffer) zone will be established designating the work areas in which access by contractors, occupants, customers of adjacent properties and unauthorised personnel will be strictly prohibited.

4.1 Excavations in Asbestos Affected Areas / Asbestos Removal

4.1.1 Stage 1 – Prior to works

- The LARC shall make full provision for all project-related works, waste removal and any other works to be conducted. The Works Program must indicate the time frames for the various stages of the project (i.e. setup phase, capping phase etc.) for the remediation of the asbestos materials.
- Review of LARC's proposals, SWMS and asbestos removal control plan;
- Communicate the proposed excavation, trenching/installation works and asbestos removal works to all key stakeholders and owners of adjacent properties; and
- LARC to lodge notification of asbestos removal to SafeWork NSW (minimum 5 days prior to works).

4.1.2 Stage 2 – Pre-Excavation / Prior to Removal Works

- Isolate and secure the area by installing barricades around the site. Establish an exclusion zone at least 5 metres around the work area, where practical, Fencing or barricading must be in place around the boundaries of the exclusion zone and its integrity maintained for the duration of the works;
- Install visible asbestos removal warning signs around the boundaries of the removal work area;
- Ensure minimum PPE requirements for personal on site including but not limited to: half-face filter respirator fitted with a class P2 particulate filter cartridge, disposable coveralls, booties and nitrile gloves;
- Establish a suitable dry decontamination area, for workers and equipment;
- Ensure access and exit routes to the site /exclusion zone are clean and free from obstruction;
- Should off-site disposal is required: LARC to design the route for removal of asbestos waste through the asbestos removal work area prior to commencement of the asbestos removal work as part of the site waste disposal program;

- LAA/hygienist to visually inspect the area to assess site set-up, the suitability of the exclusion zone boundary in relation to neighbouring properties/occupants and appropriate signage. The LAA/hygienist should also review the waste disposal program developed by the LARC. The LAA/hygienist should direct the LARC to rectify any faults or discuss any recommendations prior to removal works;
- Provide copies of current license and insurances, including a Class A Asbestos Removal License and Public Liability and Worker's Compensation Insurances;
- All persons undertaking the asbestos remediation must be competent and appropriately trained, with training records available on-site;
- In accordance with current legislation, any neighbouring properties and persons within and surrounding an area that may be affected by the asbestos processes, must be informed of the works prior to their commencement;
- An inspection by the supervising qualified consultant is to be undertaken prior to the commencement of any works to confirm that the asbestos work area has been adequately set up; and
- A site induction must inform workers of the presence of ACM in fill soils, the related risks and controls in place to manage the risks and any other general information relating to asbestos as seen appropriate. A more detailed induction / training process must be implemented for all workers expected to come in direct contact with and/or disturbance of asbestos.

4.1.3 Stage 3 – Excavation / Removal Works

Licensed Asbestos Assessor (LAA) / Hygienist

- The LAA/Hygienist is to conduct control air monitoring surrounding the work areas and ensure dust suppression water spray is conducted during excavation, installation and asbestos removal and in any additional areas specified by the Client, to ensure the control measures are appropriate and works do not release airborne asbestos fibres;
- Visual clearance inspection of the work areas and clearance monitoring upon completion of the removal and reinstatement works;
- Supervision of removal works or regular 'spot-checks' to ensure compliance with AMP and other relevant documents/regulations;
- Subsequent to successful visual inspection and clearance air monitoring results confirmed as <0.01 fibres/mL, the LAA will give notice to the LARC to disassemble the exclusion zone and decontamination containment;
- LAA/Hygienist to undertake air monitoring during and following disassembly of containment area; and
- Issue a clearance certificate following satisfactory inspection and air monitoring results.

Removal Contractor (LARC)

- Ensure availability of minimum PPE requirements for workers working within the exclusion zone. This includes: P2 half face particulate filter cartridge respirators and disposable coveralls and booties;
- All planned earthworks that involve disturbance/ excavation of fill material on site (inc. cut & fill, trench excavations etc) must be undertaken under Class A asbestos removal conditions;
- Disposable coveralls and any other asbestos waste generated will be placed in asbestos waste bags (unused, heavy-duty asbestos waste polythene bags);
- All asbestos waste must be disposed of at a asbestos licensed landfill site and transported in a safe and compliant manner;
- All plant and equipment is to be thoroughly decontaminated at the completion of removal works; and
- Further cleaning will be undertaken of any areas deemed unacceptable by the LAA/hygienist.

The exclusion zone (i.e. asbestos removal area) should be thoroughly cleaned, with all equipment and trace of works removed from the area following the works and prior to normal occupancy.

4.1.4 Stage 4 – Post Excavation, Removal Disposal Works

- Should any off-site disposal of soils is required, waste classification of the material will be required in accordance with NSW EPA 2014 Waste Classification Guidelines

- Waste disposal documentation to be provided to the licensed waste facility that receives the waste , transport only following approval from the licensed waste facility ;
- Supply of asbestos removal documentation (clearance inspection reports including air monitoring results and waste receiver receipts) to the Client; and
- Update of any relevant site documents.

4.2 Excavation, Earthworks Management

Methods must ensure that adequate measures are in place to avoid the release of dust and potential asbestos fibres. The following controls are to be maintained throughout all soil disturbance works:

- Dedicated, Class A licensed asbestos removal contractor including their licensed supervisor must be present during excavation, trenching/installation and asbestos removal works;
- An LAA/ asbestos consultant will attend the site during the works to implement air monitoring (refer to AMP) during excavation, trenching/installation and asbestos removal works;
- A qualified Greencap Environmental Consultant will undertake soils sampling and waste classification;
- Protecting excavated dry material (if any) with tarps, consolidation, erection of wind breaks and if these measures cannot be reached, then wetting down of the material;
- Personnel entering the asbestos works exclusion zone are to use all required PPE. PPE is not to be removed whilst within the exclusion zone. Personal Protective Equipment (PPE) minimum requirements include a P2 half face particulate filter cartridge respirator and disposable coveralls, gloves & booties. Respirators, disposable coveralls, gloves should be used for works involving excavations into asbestos-contaminated soils. This applies to people entering the asbestos affected area during excavation works and particularly to workers excavating and relocating soil. The licensed asbestos removal contractor and hygienist will assess requirements periodically;
- Adequate dust suppression is to be maintained throughout the duration of the works such that no visible dust is generated. The use of excessive water resulting in runoff is to be avoided;
- It is the asbestos removal contractors' responsibility to ensure that all measures are in place to prevent potential cross contamination of 'clean' areas of the site as a result of excavator tracking or truck movements;
- The asbestos removal contractors must ensure that entry gates into the excavation areas are always closed (other than to allow entry and exit of trucks and machinery) and that truck wheels are adequately clean if required before leaving the asbestos work areas; and
- Decontamination procedures are to be carried out as specified.

Further general details on site management for asbestos remediation are included in the AMP.

4.3 Stockpile Storage (if any)

- Minimize potential cross-contamination of the ground surface. The stockpile must be wetted and securely covered with geofabric until it is moved into the containment area;
- Asbestos-impacted stockpiles should be located at the greatest distance from any sensitive receptors and be covered and controlled through a diligent regime of dust suppression, erosion, run-off and other environmental measures;

4.4 Excavation Reinstatement Requirements.

Following cut and fill activities and excavation of trenches (and removal and disposal of the excavated soils where required) in accordance with this AMP, site surface will be covered with geofabric marker layer prior to importation of validated virgin excavated natural material (VENM) soils. Imported soils are to be assessed and approved by the Validating Consultant (Greencap). VENM importation must be undertaken during full-time supervision of a Greencap's LAA/contaminated land consultant.

Inspection and photographic records before and after backfilling will be provided by the LAA/contaminated land consultant to confirm compliance with specified requirements of this AMP.

4.5 Engineering Controls and isolations

Signage and barriers must be used to clearly define the work area boundaries and to prevent unauthorised access to the site. Access to the work areas is to be via a controlled zone, or for any Class A removal works.
Contractors must provide a clean area for decontamination, storage of clothing and personal hygiene outside of the exclusion zone areas.
A waste disposal program should be included in the asbestos removal control plan developed by the LARC. This should specify the method of transport and routes to be used for removing waste from the asbestos removal area before the commencement of each removal.
Prior to commencing asbestos removal/excavation works, the LAA/hygienist shall inspect the work area's controls, and any issues or recommendations following this inspection are to be resolved prior to works.

4.6 Signage and Warning Notices

Regulations require the LARC to install warning signs and contact details at the entrance to the site and around the site.
Suitable warning signs shall be placed around the area of works. The signs shall conform to Australian Standard (AS)1319-1994 and the *WHS Regulation 2017 (NSW)*. The LARC shall ensure that such signs remain secure and in good condition for the duration of the works. Appropriate warning notices shall be displayed at each entry point. Composite signs will be permitted. The LARC will check signs daily to ensure they remain in place, secure and relevant.

4.7 Decontamination Procedures/ Exclusion Zone

The LARC shall provide adequate decontamination facilities in accordance with the guidelines specified in the Codes of Practice. Access to the site must be limited to access via a dry decontamination unit.
Local decontamination facilities should be set-up, as a minimum, and personal decontamination procedures must be followed.
The LARC should provide and maintain on-site a suitable and adequate hygiene/decontamination for use throughout the duration of the contract, for use by the workers and where required, the LAA, and their representatives.
Decontamination procedures **must** be followed for every item/worker etc. that leaves the site area.

4.8 Personal Protective Equipment and Respiratory Protection

The minimum PPE requirements for asbestos materials abatement and removal processes are:

- All persons engaged in excavation, trenching/installation, and asbestos materials removal work should wear an approved respirator conforming to the requirements of Australia/New Zealand Standard 1715 (Selection, use and maintenance of respiratory protective devices) and 1716 (Respiratory protective devices);
- Disposable coveralls and booties rated type 5, category 3 (prEN ISO 13982–1) or equivalent;
- Clothing and washable boots/footwear with elasticised openings, which completely enclose the body, head and feet in such a manner so as to prevent personal contamination and be of a material that does not retain asbestos fibres; and
- Safety helmets, footwear, gloves or any other personal protective equipment required onsite. This is to be confirmed by the Principal Contractor to be appointed by the Client, shall also be worn, as and where necessary. All such equipment shall conform to relevant legislation and guidance notices eg:
  - Gloves to provide some protection against cuts, abrasion, if required;
  - Eye protection to provide protection from impact of stone or concrete fragments for work within wall cavities or overhead work;

Coveralls should be disposed of after a single use and upon completion of each shift, the LARC shall dispose of all used disposable coveralls as contaminated asbestos waste. If it is not reasonably practicable to provide coveralls that can be disposed of after a single use, the coveralls may be contained and laundered at a commercial laundry equipped to launder asbestos-contaminated clothing. However, laundering of asbestos-contaminated protective clothing is not recommended.

4.9 Respiratory Protective Equipment

All workers engaged in asbestos removal work must wear RPE conforming to the requirements of AS/NZS 1716:2012 Respiratory Protective Devices or its equivalent. All asbestos removal workers and personnel entering asbestos removal areas during the removal, clean-up, inspection and testing of asbestos materials must utilise a respirator at all times. The respirator/mask should be applicable to the type of work to be done, the working environment, the wearer and the material to be removed (i.e. asbestos friability and expected fibre concentrations). The site hygienist/LAA may change the required level of respirator required at any time during removal works.

For Class A, friable removal works, a half-face particulate respirator with P2 filter cartridge should be used. If this is deemed impracticable for the task a half-face respirator with P2 filter may be used.

To make sure that the selected face mask can provide adequate protection for the wearer, a fit test should be carried out prior to use.

In order for respiratory protection to be efficient and effective, it must be worn correctly and kept in good condition. It should be worn at all times in the exclusion zone and during decontamination and waste removal operations. Furthermore, operators should be clean-shaven; removing beards, stubble and moustaches to ensure an adequate skin to mask seal. Facial hair that does not interfere with achieving an adequate facial fit with the respirator may be allowed (determined by a face-fit test).

Any respirator defects should be reported to the LARC supervisor for subsequent repair. They should be maintained in a clean and safe working condition by its owner, or by the officer designated by the LARC to be responsible for the safe working condition of respiratory equipment. Respirators should be issued for personal use only and labelled clearly with the individual owner's name. Individuals should keep them in a clean condition and alcohol-based antiseptic swabs should be made available for the cleaning of respirators.

4.10 Safety Clothing

During any work in 'remediation areas' prior to final clearance, coveralls worn should be made from either 100% synthetic material or a mixed natural/synthetic fabric capable of providing adequate protection against fibre penetration. All fabrics must be capable of preventing the penetration of asbestos fibres down to a diameter of 0.5 micron and to a maximum 1% penetration of all airborne asbestos fibres. Once worn, disposable coveralls are not be reused or laundered.

The LARC shall provide suitable and adequate personal protective clothing and footwear for all operatives or persons who are likely to be exposed to contamination by asbestos, including the client, the Asbestos Assessor, the consultant or emergency service, as and where required. Clothing and footwear shall have elasticised openings, completely enclose the body, head and feet in such a manner so as to prevent personal contamination and be of a material that does not retain asbestos fibres.

Upon completion of each shift, the LARC shall dispose all used, disposable coveralls as asbestos waste or have non-disposable coveralls suitably contained, removed from the site and laundered at a suitable facility. Safety helmets, footwear, gloves or any other personal protective equipment shall also be worn, as and where necessary. All such equipment shall conform to relevant legislation and guidance notices.

- All persons engaged in asbestos materials removal work **must** wear an approved P2 particulate mask (as a minimum) or approved respirator conforming to the requirements of Australia/New Zealand Standard 1715 (Selection, use and maintenance of respiratory protective devices) and 1716 (Respiratory protective devices);

- As a prudent approach, 100% synthetic disposable type 5, category 6 coveralls meeting specification that prevents fibres of diameter down to 0.5 microns are recommended for persons entering the exclusion zone during the works;
- Washable safety boots;
- Gloves to afford some protection against cuts, abrasion, if required;
- Eye protection to provide protection from impact of stone or concrete fragments for work within wall cavities or overhead work;
- Respirators should be labelled clearly with the individual's name, issued for personal use only. That person should keep them in a clean condition. Alcohol-based antiseptic swabs should be made available for the cleaning of respirators;
- Any respirator defects should be reported to the LARC supervisor for subsequent repair. They should be maintained in a clean and safe working condition by that person, or by the officer designated by the LARC to look after and be responsible for the safe working condition of respiratory equipment;
- Accordingly, all personnel involved in asbestos removal and required to wear a mask are to be clean-shaven. Facial hair that does not interfere with achieving an adequate facial fit with the respirator may be allowed;
- Clothing and footwear shall have elasticised openings, completely enclose the body, head and feet in such a manner so as to prevent personal contamination and be of a material that does not retain asbestos fibres;
- Upon completion of each shift, the LARC shall dispose all used, disposable coveralls as contaminated waste or have non-disposable coveralls suitably contained, removed from the site and laundered at a suitable facility and;
- Safety helmets, footwear, gloves or any other personal protective equipment required onsite, this is to be confirmed by the Principal Contractor, shall also be worn, as and where necessary. All such equipment shall conform to relevant legislation and guidance notices.

PPE Requirements during Asbestos Removal	
	
P2 Class half-face respirator with P2 cartridge filter (friable removal)	Type 5, category 6 disposable coveralls

4.11 Waste

Asbestos containing materials and all waste material (e.g. disposable coveralls and booties, respirator filters etc) shall be placed directly to a 200 µm asbestos waste bags throughout the asbestos materials removal process.

A waste disposal program developed should be included in the asbestos removal control plan developed by the LARC. This should specify the method of transport and routes to be used for removing waste from the asbestos removal area before the commencement of each removal. To prevent cross-contamination, where possible and practicable, ACM waste must be removed from the work area and decontaminated appropriately within the decontamination area, ensuring that it is contained securely wrapped in 200 µm thick plastic. The bags should be labelled with appropriate signage stating that they contain asbestos and

that dust creation and inhalation should be avoided. The external surface of each bag should be cleaned to remove any adhering dust before the bag is removed from the asbestos removal work area. Asbestos waste bags containing friable asbestos should be double bagged outside the asbestos removal areas immediately following the decontamination process.
Workers must wear personal protective equipment when handling waste and materials at the decontamination unit.
The asbestos waste must be disposed of as soon as reasonably practicable and any temporarily stored asbestos waste must be properly contained to prevent exposure to airborne asbestos fibres. Containment is to be in new heavy-duty 200 µm (minimum thickness) labelled polythene bags that are no more than 1200 mm long and 900 mm wide to prevent manual task injuries.
Waste must be classified under NSW EPA's Waste Classification Guidelines 2014 and be disposed of at a NSW EPA-registered waste facility licensed to receive asbestos waste.
Prior to transporting waste, the waste classification report is to be provided to the waste facility to ensure they have the capacity to receive the waste. Receipts, weigh bridge dockets for each waste consignment shall be provided to the Client.

4.12 Cleanliness and Clearance Certification

The LARC must remove all asbestos containing materials from the asbestos removal area and decontaminate any equipment used during removal works. The LARC must make any cleaned equipment available for inspection by the LAA/hygienist if requested.

4.13 Asbestos Fibre Air Monitoring

For Class A (friable) asbestos removal works, only an LAA may undertake air monitoring, as described below. **Air monitoring is mandatory for all friable asbestos removal and related excavation works**.
The LAA shall carry out appropriate air monitoring of the workplace and surrounding areas during the clean-up/removal works. Typical areas will include:

- Adjacent the works area;
- Adjacent waste / transit routes;
- Adjacent the waste skip/truck;
- Adjacent decontamination /change area;
- Adjacent the site office/lunch room; and
- Occupied areas of the building (where ACM removal is not being carried out).

Work areas will be inspected by the LAA at the request of the LARC or at the discretion of the LAA.
The LARC shall maintain air-monitoring results below the control limit in areas which are being worked, and areas checked by the LAA.

4.13.1 Asbestos Air Monitoring Action Limits

Daily air monitoring analysis and reporting should be completed as soon as practicable. The LARC shall maintain air-monitoring results below the control limit in all areas and must take action based on the respirable fibre level received. If air monitoring results exceed the action levels outlined in the table below, this action must be taken immediately.
The control limits shall be as follows:

4.13.2 Control (Static) Monitoring During Removal Works

Control Level (fibres/mL)	Who	Control / Action
< 0.01	-	No Action. Continue with existing control measures.
≥ 0.01	Consultant Hygienist/ Asbestos Assessor	LAA to notify LARC and advice of results as soon as is practicable.

Control Level (fibres/mL)	Who	Control / Action
	Consultant Hygienist/ Asbestos Assessor	LAA & LARC to review current control measures and improve, where applicable. This may include improved work practices, use of further control measures (e.g. plastic screening or wet wiping techniques) or changing the work methodology.
> 0.02	Consultant Hygienist/ Asbestos Assessor & Project Manager/ Principal Contractor/ Facilities Manager	LAA to notify LARC to **stop works immediately**. LARC to notify SafeWork NSW or relevant regulator by phone, followed by written statement within 24 hours, that work has ceased and the results of the air monitoring.
	Consultant Hygienist/ Asbestos Assessor / Principal Contractor/ Facilities Manager	LAA to conduct investigations to establish cause of problem. Following advice from the Asbestos Assessor, LARC to undertake any necessary improvement works to rectify problem. Additional air monitoring to be conducted by Asbestos Assessor. LARC will be allowed to recommence removal works after results are <0.01 fibres/mL. LAA to advise of the results once levels have returned to normal.

4.13.3 Clearance Monitoring

Control Level (fibres/mL)	Who	Control / Action
< 0.01	-	Clearance can be issued by LAA.
≥ 0.01	Consultant Hygienist/ Asbestos Assessor	LAA to notify LARC and advise of results as soon as is practicable.
	Consultant Hygienist/ Asbestos Assessor	LAA to conduct investigations to establish cause of problem. Following advice from the Asbestos Assessor, LARC to undertake any necessary improvement works. This may include further works such as increased HEPA vacuuming or wet wiping techniques. Additional air monitoring to be conducted by LAA. Clearance can be issued after results are <0.01 fibres/mL.

4.14 Timing of Clearance Inspections

The inspection of the work areas shall be carried out when the LARC representative on site considers the removal work is satisfactorily completed. Inspections are to be carried out with the LARC site representative in order to establish areas which may require further cleaning. Adequate lighting, cleaning equipment, tools, safety devices, safe access and assistance is to be provided to the inspecting LAA/Consultant to conduct any additional clean-up of residual asbestos materials and complete the inspection.

Inspections by the LAA/Consultant will take place generally at the following times:

- On advice that the area is clean; and
- Final Inspection.

The LAA/Consultant shall inspect the work area before perimeter barriers are removed. Visual inspections will be conducted with the LARC supervisor in order to establish which areas may still require further cleaning. These areas should be cleaned and re-inspected prior to any clearance monitoring.

4.15 Removal of Enclosure and Final Clearance

No enclosures, exclusion zone barriers, decontamination areas, or parts of such, shall be removed or dismantled before a satisfactory visual inspection and clearance air tests have been undertaken and confirmed by the LAA/Consultant.

Following successful visual inspection and clearance air monitoring results confirmed as <0.01 fibres/mL, the LAA/Consultant will give notice to the LARC. The LARC shall dismantle the enclosure carefully in a safe manner removing equipment, materials and waste from site, including residual polythene sheeting, tape etc. the LAA will undertake air monitoring during disassembly of containment/site.

Final clearance monitoring and clearance certification of the site will not be performed until the entire work area has been cleaned following removal of the containment and all equipment and inspected by the LAA/Consultant.

If a clearance certificate has not been obtained, the asbestos removal area must not be re-occupied for normal use or other work activities. A clearance certificate must be issued before the area can be re-occupied for demolition or other work. Unauthorised persons cannot enter the asbestos removal work area prior to a clearance certificate being issued and any protective barricades should remain in place until the completion of all licensed asbestos removal work and the final clearance certificate is issued.

4.16 Provision of Clearance Certification

The Asbestos Assessor shall provide air monitoring, site inspections, clearance inspections and certification for asbestos/hazardous materials abatement/removal works to the LARC and the Client.

The Asbestos Assessor shall keep records of all air monitoring carried out. During the work, these records shall be retained on site with the LAA, for inspection by the Client, the LARC, SafeWork or other stakeholders.

4.17 Timing of Clearance Inspections

The inspection of the work areas shall be undertaken following completion of works.

The Asbestos Consultant shall undertake an inspection of the work area to ensure that the surface is free of asbestos containing material. A clearance certificate will only be issued once the Asbestos Consultant is satisfied that the works areas is usually clear of asbestos and when final air monitoring results are confirmed to be <0.01 fibres/ml.

No enclosures, decontamination areas, or parts of such, shall be removed or dismantled before a satisfactory visual inspection have been undertaken and confirmed by the Asbestos Consultant.

The LARC shall dismantle the enclosure carefully in a safe manner removing equipment, materials and waste from site, including residual polythene sheeting, tape etc.

5 General Project Requirements

The contractor should adhere to all conditions and procedures as stipulated in the Client's Contract Specifications for this project. General requirements regarding asbestos materials removal is given below.

5.1 Inductions

Site inductions will be carried out prior to project commencement at a time stipulated by project management within business hours Monday to Friday. The LARC will make allowance for this time.

5.2 Site Meetings

If required, the LAA/Consultant Hygienist, the Client's representative, the LARC and representatives of their sub-contractors (if applicable) will, when and where directed, provide a senior representative of the company to attend all site meetings. An on-site meeting can be held on site with the Client, the LARC and LAA/Consultant Hygienist at the discretion of the Client.

5.3 Safety

The LARC must have one person on site responsible for ensuring works are carried out safely and in accordance with site specifications and SWMS provided by the LARC.
In the event that a worker or workers are found contravening the agreed safety protocols or a safety breach, the LAA/Consultant Hygienist will ask the contractor to leave the work area and present himself to the LARC supervisor.
The LAA/Consultant Hygienist will ask the LARC supervisor to remove this person from site for the remainder of the day and should the person breach the site safety rules a second time the offending person will not be permitted back on site. Minor breaches will require the worker to be retrained. Evidence of retraining must be provided prior to being allowed to work back on site.
Personnel found breaching the sites safety/security policies, or WHS Act will be asked to leave site. All staff will be informed of this prior to starting work on site.
No alcohol is permitted on site and no smoking is permitted inside any building. People shall not be under the influence of alcohol or drugs when on-site.

5.4 Program

The LARC is to supply enough labour to enable the project to be completed on time without working excessive hours during a work shift. The Client will advise the LARC on the time allowance for the setup, removal and demobilisation for the project.
The LAA/Consultant Hygienist and the LARC will meet daily to discuss program. Should the program fall behind the LARC will be directed to make up the program the next day.

5.5 Hire equipment and Daily Checks

The LARC must have documentation for receiving hire equipment and for off hiring. Only operators licensed to operate hire equipment, including EWPs, will be permitted to operate this equipment. Evidence of licenses must be provided prior to commencing work on site. Log books for each mobile plant must be completed every day. Entries must be made at the beginning of each day.

5.6 Site Communication

The LARC shall provide telephone communication for the supervisors. The foreman, leading hand or supervisor shall ensure that communications devices are in their possession at all times. Where two-way radios are provided, one radio is to be made available to the LAA/Consultant Hygienist throughout the duration of the project.

5.7 Isolation of Services

It is the LARC responsibility to ensure that all buried services have been isolated and that the work area is rendered safe in conjunction with the Client. The Client and LAA do not guarantee that all services are isolated in any area. The LARC is not to breach any energy conduit, either pipe or cable unless specified.
The LARC must provide a risk assessment and evidence of training for their staff with regard to any live electrical or data services within the work area, prior to commencement of works. This training should ensure that the workers have a means for determining electrical and data cabling is energised and fully comprehend the importance of tagging/isolating and locking out power and protecting energised services during the project. Ensure that existing services are not interrupted during works.
False alarms resulting in the call out of emergency services or security services shall be the responsibility of the LARC, and the LARC shall meet any associated costs. A written record of isolations must be maintained in the work area and signed off by the person or company.

6 Licensed Asbestos Removal Contractor

6.1 Permits and Approvals

The LARC shall obtain all notifications and approvals required for the asbestos removal work in this contract and will be responsible for their maintenance. It is noted that notification to SafeWork is required at least 5 days in advance of removal works. The Asbestos Removal license and notification must be displayed on site at all times. For friable removal works, the LARC must have a Class A asbestos removal licence.

Upon request, the LARC shall provide the LAA with a copy of all approvals obtained, prior to commencement of works.

6.2 Safe Work Method Statement (SWMS)

The LARC will provide the LAA with an Asbestos Removal Control Plan and a Safe Work Method Statement (SWMS) for each task, ensuring that they consider and address the technical specification requirements and the Client's contractual requirements.

Only site-specific SWMS detailing safety hazards and work methods will be accepted. Generic documents will be sent back to the contractor for amendment. (Note, works on site will not be permitted until these documents have been approved by the LAA and the Client). These should be received two (2) weeks before work commences on site, to ensure that the project starts without delay.

The LARC shall detail the methods and programming for the removal of the asbestos materials, including:

- Site-specific set-up requirements;
- Asbestos/Hazardous Materials removal methodology;
- Notification for vacating building occupants;
- Personal PPE requirements;
- Site access and egress;
- Fire and emergency procedures;
- Isolation of services;
- Movement of excavated waste;
- Isolation of road ways; and
- Protection of surrounding areas from exposure to asbestos.

Should there be a need to revise and update a SWMS during the project; the changes shall be discussed with the affected work groups and LAA. A revised SWMS will commence once the changes have been reviewed and agreed by the LAA/Consultant Hygienist and work group. The changes must be signed onto by the work group and all applicable workers re-inducted. Old SWMS are to be removed and marked 'superseded'.

6.3 Asbestos Materials Removal Control Plan

It shall be the responsibility of the LARC to make a risk assessment of exposure to asbestos and risks associated with the proposed works.

The LARC is required to consider, propose and detail all necessary working procedures and control measures within an Asbestos Materials Removal Control Plan as prescribed by SafeWork NSW. A copy of this plan should be appended in the Pre-contract works package for assessment by the LAA prior to commencement of works.

SafeWork NSW is to be notified of removal works and an Asbestos Removal Control Plan submitted a minimum of 5 days prior to the starting date by completion of an online form.

6.4 Asbestos Materials Removal Contractor Supervisor

The workforce of the LARC shall be at all times under the control of the LARC's supervisor who must have appropriate training and experience in asbestos removal and be familiar with the requirements of this specification.

The responsibilities of the supervisor shall include but not be limited to:

- Coordination and monitoring of traffic management and establishment of storage for waste and equipment and loading and unloading areas;
- Supervision of asbestos removal and disposal in a safe manner;
- Coordinate inspections by the LAA;
- Supervision of site clean-up and defects rectification;
- Responsible for the receiving of materials; and
- Responsible for the receiving and hiring of equipment.

A list of all names, responsibilities and contact numbers of responsible persons is to be provided to the LAA prior to commencing work on site. No asbestos removal, clean up or reinstatement shall take place without the presence in the working area of such a supervisor. The list of names of the approved supervisors is on the LARC's license conditions and a copy of this license may be reviewed by the Asbestos Assessor.

The Client and the LAA/Consultant Hygienist will not take responsibility of any delivery returns or pick up of any materials or equipment whatsoever.

6.5 Records and Training

- Induction and training must be provided in the management of asbestos abatement to all personnel working on the site.

SWMS must be prepared for new work or activities of risk outlined in the SWMS and Asbestos Removal Control Plan. Records of the SMWS, induction documentation, other training and disposal documentation must be maintained in the site project files for review by the LAA, Client and SafeWork NSW (if requested).

6.6 Contractor Safety Management

The LARC is responsible for and must ensure the health and safety of the LARC employees, sub-contractors and agents and third parties. The LARC shall be responsible for the supervision of their employees and other inspecting personnel, ensuring safe systems of work are employed at all times.

The LARC and its sub-contractors shall be responsible for the maintenance of a safe workplace and ensuring that all work is carried out on the site in a safe manner. The LARC shall ensure that each employee on site acts in a safe manner and those unsafe conditions are reported and corrected immediately.

The LARC must provide as far as practicable all necessary safety equipment and training for employees and sub-contractors during the execution of the work under the contract.

6.7 First Aid

The LARC shall comply with and shall ensure that their sub-contractors comply with the provision of first aid facilities for their workforce in accordance with:

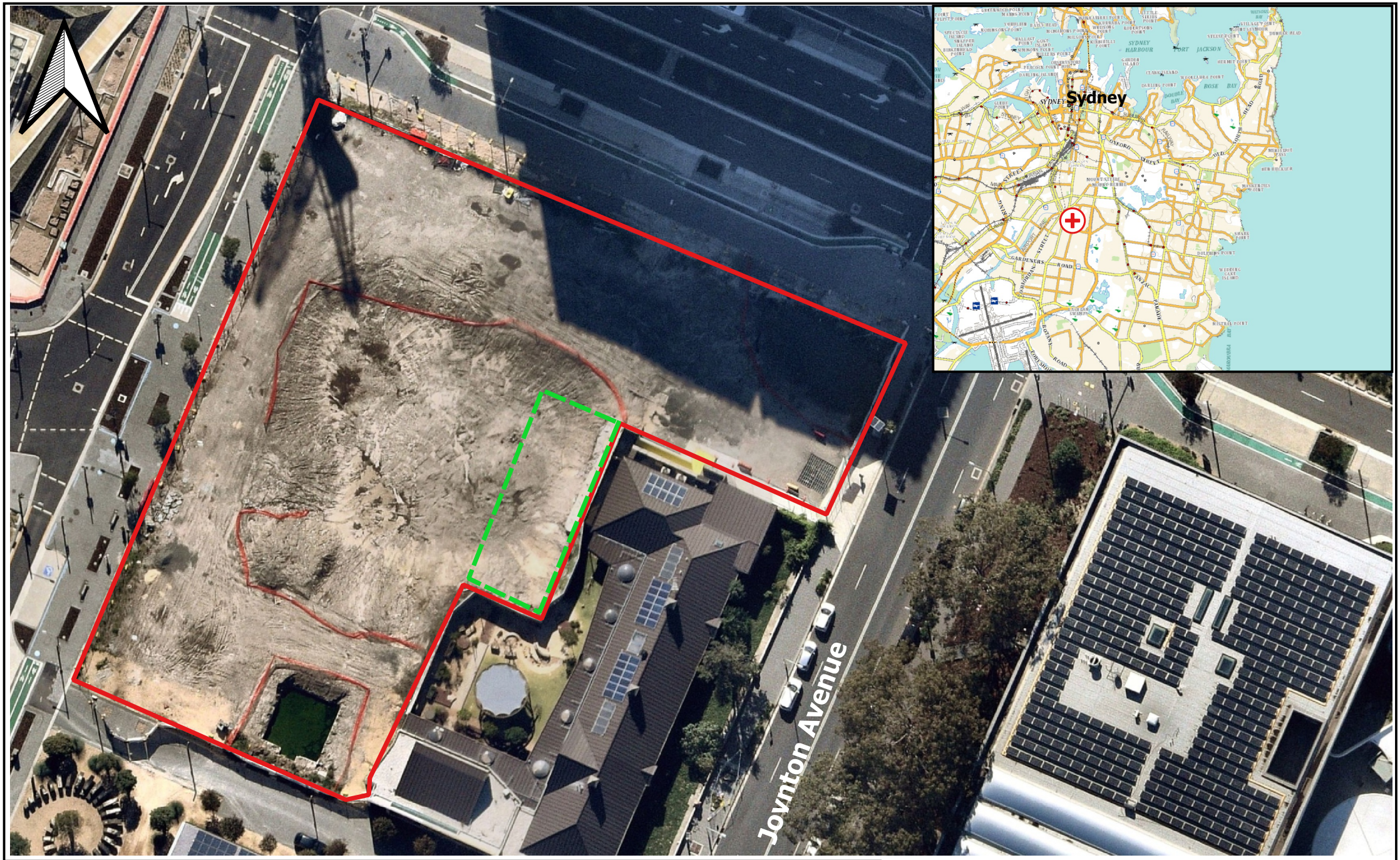
- The relevant Industrial Award; and
- The First Aid in the Workplace Code of Practice (2018).

7 Unexpected Finds Protocol

It is acknowledged that previous investigations of the site have been undertaken to assess the identified contaminants of potential concern in selected parts of the site. However, ground conditions between sampling points may vary, and further hazards may arise from unexpected sources and/or in unexpected locations during remediation. The Unexpected Finds Protocol (UFP) will be applied by workers when triggers such as suspected buried building materials, offensive odours, ruptured oil drums, staining etc are unexpectedly found on site. Asbestos-containing materials (bonded and friable) are considered as recognised contaminants on site and as such are NOT considered as unexpected findings. A detailed UFP is summarised in Section 8.1 of the RAP (JBS&G, 2020).

Asbestos Management Plan
Hutchinson Builders
3 Joynton Avenue, Zetland NSW

Figures



Legend

- Proposed Childcare Centre Playground Boundary
- Proposed Green Square Public School Footprint

0 15 30 m

GREENCAP
Going Further in Managing Risk

Title: Site Features

Client: Hutchinson Builders

Location: 3 Joynton Avenue, Zetland NSW

Project Manager: ZZ	Scale: As Shown	Job No: J176343
Reviewed by: MB	Date: July 2022	

Figure 1

Construction Environmental Management Plan

Hutchinson Builders

GSPS

APPENDIX I: NOISE AND VIBRATION MANAGEMENT PLAN

1. PURPOSE

To address the requirements of the Development Consent in reference to a Construction Noise and Vibration Management Plan for construction of the Green Square Integrated Community Facility and School at 3 Joynton Avenue, Zetland NSW (the "site").

2. SCOPE

Applies to all Hutchinson Builders work-related activities, workplaces, employees, contractors, subcontractors and visitors associated with the project.

3. PROCEDURE

This Noise and Vibration Management Plan details how Hutchinson Builders will undertake works associated with the Project in accordance with the Interim Construction Noise Guidelines (OEH 2009) and the EPA Noise Control Manual Chapter 171 "*Noise Control Guidelines for Construction Site Noise*".

3.1 Sensitive Receptors

The closest sensitive receptors are the residential dwellings on the western boundary, the adjoining day care centre who may potentially be exposed to COPCs through inhalation of dusts/fibres/vapours associated with impacted soils to the south-eastern boundary of the construction site.

3.2 Potential Impacts

Construction noise and vibration impacts on residential dwellings within the proximity of the study area would be associated with the following:

- Vehicle and staff movements;
- Generator operation;
- Use of plant and machinery for clearing/transporting of vegetation;
- Excavation and compaction works;
- Use of plant machinery for spoil removal and sandstone block splitting and sorting;
- Use of equipment for cleaning; and
- Delivery and removal of materials.

Vibration impacts would be generated by truck movements and use of plant equipment. Such potential vibration impacts are likely to dissipate with distance from the works. Due to the proximity of the sensitive receptors the potential for impact is moderate, but temporary and limited to the duration of the construction works.

Vibration generated by construction activities is not anticipated to exceed the Department of Environment and Climate Change criteria for human comfort (DECC, 2006) due to the distance of the works from residential receivers.

3.3 Noise

When planning construction operations; ensure all practical efforts to comply the EPA Noise Control Manual Chapter 171"*Noise Control Guidelines for Construction Site Noise*". Where the EPA guidelines are likely to be exceeded, apply a practical and economical combination of noise control measures to manage the impacts of construction noise. This include operational controls such as:

- Substitution by alternative process;
- Restricting times when noisy work is carried out;

- Placement of work compounds, parking areas, equipment and material stockpile location away from noise-sensitive locations;
- Where noise barriers/walls are to be constructed, program this as early as possible to reduce noise impacts from other construction work on sensitive receptors;
- Screening or enclosures; and
- Consultation with affected residents. Provisions for this is located in the CEMP.

All construction plant and equipment used on the project must, in addition to other requirements, be:

- Fitted with properly maintained noise suppression devices in accordance with the manufacturer's recommendations;
- Maintained in an efficient condition; and
- Operated in a proper and efficient manner.

Potential risk events which can give rise to hazards associated with noise and vibration include but are not limited to:

- Plant and equipment operation;
- Failure of plant noise controls; and
- Adverse weather conditions (wind).

3.4 Background Noise Levels

The benchmarks used to assess vibration impacts due to the construction works are documented in the Noise and Vibration Impact Assessment Report, prepared by Acoustic Logic. The Noise and Vibration Impact Assessment documents recommendations and requirements for mitigation of noise and vibration during construction. This report forms part of the SSD application. The Noise and Vibration Impact Assessment notes that whilst not strictly required, consideration should be given to the potential for cumulative noise/vibration impacts relating to construction associated with neighbouring developments, with feasible and reasonable mitigation measures to be implemented if possible, to minimise impacts on surrounding uses.

The background noise levels and the intrusiveness noise objectives derived from long term noise logging are presented in the Noise and Vibration Impact Assessment (Acoustic Logic, 2021) provided in **Table 1.**

Table 1: Long Term Noise Logging

Time of Day	Background Noise Level dB(A)L_{90}	Intrusiveness Noise Objectives dB(A)Leq (15 minutes) (Background+5db)
Day Time (7am-6pm)	49	54
Evening (6pm-10pm)	48	53
Late Evening (10pm-11pm)	47	52

3.5 Noise Controls

3.5.1 Muffler Requirements

As most construction noise is derived from plant powered by internal combustion engines, much of the noise will be controlled by use of adequate muffler systems. Check when plant starts at whether mufflers are defective. If so, arrange prompt repairs, or get subcontractors to fix their plant.

3.5.2 Maintenance and Operation of Equipment

Poor maintenance of construction plant may increase operating noise levels. Faulty or loose mechanical parts etc, all contribute to increasing noise level of machines and equipment.

Careless or improper handling and operation of plant can also increase construction noise levels. Poor handling, unloading, excavation and hauling techniques are some examples of how lack of adequate guidance may lead to increased noise levels.

All construction plant must be regularly inspected to ensure adequate maintenance. Operators will be required to be properly trained in the use of construction plant.

3.5.3 Plant Emission Level Requirements

One of the most effective methods of reducing noise impact of induvial items of construction plant is to use quieter machines. This will be accomplished by specifying the quietest available plant.

3.5.4 Time and Activity Constraints

During leisure hours, noise disturbance from construction plant must be kept to a minimum. The basis for this noise management strategy will be to limit the times that certain noise producing activities may be carried out. Generally, this will be accomplished by performing noisy work during daylight hours.

3.6 Vibration Controls

3.6.1 Time and Activity Constraints

During leisure hours, vibration disturbances from construction must be kept to a minimum. The basis for this vibration management strategy will be to limit times that certain vibration producing activities may be carried out. Generally, this will be accomplished by performing such work, during day light hours (when the majority of adjacent residents are either not present or engaged in less vibration sensitive activities).

3.7 Dilapidation Surveys

Unless otherwise approved, dilapidation surveys should be carried out for each public utility, structure and building within the distance from the appropriate construction activity as follows:

Table 2: Dilapidation Survey Requirements

Activity	Distance
Excavation by hammering or ripping	100m
Demolition of Structures	50m

4. SITE CONTROL MEASURES

In addition to the measures in this section, please refer to Noise and Vibration Impact Assessment prepared by Acoustic Logic (2021).

4.1 Standard Working Hours

The Council's Notice and Determination 2020/923/A Condition (22, a) listed the hours of work and noise outside the CBD

Monday to Friday: 7:30 am to 5:30pm

Saturday: 7:30 am to 3:30 pm

No work Sunday and Public Holidays

No hammering or saw cutting before 7:30 am Monday to Friday or before 8:30 am on Saturday.

The Council's Notice and Determination 2020/923/A Condition (24, a) for the site specifies additional construction hours for Use Of High Noise Emission Appliances / Plant listed in Groups B, C, D, E or F of Schedule 1 of the City of Sydney Code of Practice for Construction Hours/Noise 1992 and Australian Standard 2436-2010 Guide to Noise Control on Construction, Maintenance and Demolition Sites in the following hours:

Monday to Friday: 9:30 am to 1 pm

Monday to Friday: 2 pm to 4:30 pm

Saturday: 9:30 am to 1:30 pm

4.2 High Noise Generating Activities

Rock breaking or hammering, jack hammering, pile driving, vibrating rolling, cutting of pavement, concrete or steel and any other activities which result in Impulsive or Tonal Noise generation shall only be scheduled between normal working hours as stated above in section 4.1.

Work outside of standard hours: All out of hours works are subject to a permit being issued by Council under Section 68 of the Local Government Act 1993 and/or Section 138 of the Roads Act 1993.

Any "Emergency Work" to avoid the loss of lives, property and/or to prevent environmental harm is exempt.

Strategies for managing high noise generating works were developed through community consultation process described in Section 4.8.

4.3 Standard Controls

- All vehicles, plant and equipment must be fitted with appropriate and approved sound attenuators (exhaust silencers) and maintained in good operating condition as per manufacture specifications/requirements;
- Minimise vehicle movement including loading and unloading operations;
- Minimise disturbance arising from delivery of goods to construction site;
- Loading and unloading of materials/deliveries is to occur as far as possible from sensitive receivers;
- Switch off/turn off vehicles and equipment that are unnecessarily idling or not required;
- To minimise noise and vibration, whenever possible, house machine on rubber;
- Avoid shouting;
- Adhere to site specific delivery hours and truck movements; and
- Reversing beepers to be monitored and possible fit out of the Quaker type.

All noise (including the use of audio equipment e.g. 2-way radio) and vibrations should be kept to a minimum and managed in accordance with the applicable Australian Standard (e.g. Noise-Australian Standard 2436, Guide to noise control on construction, maintenance and demolition sites) and EPA requirements.

4.4 Complaints Handling

Complaints regarding noise or vibration are to be addressed under Section 5.6 of this CEMP.

4.5 Performance Indicators

- No unreasonable noise releases;

- No undue vibration detected;
- No complaints from nearby residences/business/local authority; and
- No structural impact as consequence activities.

4.6 Monitoring

- The Council's Notice and Determination 2020/923/A Condition (2, e). requires noise monitoring methodology that is to be undertaken during the main stages of work at neighbouring noise sensitive properties in order to keep complaints to a minimum and to ensure that noise from site works complies with the noise criteria contained within City's Construction Noise Code.
- All vibration and noise complaints that are neither frivolous nor vexatious, as assessed by the Site Manager shall be investigation and assessed to determine if the noise or vibration is unreasonable or unacceptable; and
- Such investigations may require vibration or noise monitoring at the complainant's residence to identify the offensive source.

4.7 Corrective Action

- In the event that unreasonable noise is caused by machinery, appropriate repairs shall be undertaken, and the maintenance schedule reviewed;
- Should vibration or noise levels exceed standards criteria, vibration measurement assessment shall be performed by a suitably qualified person and a review of mitigation measures is to be undertaken and appropriate corrective action to be implemented;
- The following project-specific mitigation measures should be implemented:
  - Checking of compliant maintenance regimes and statutory supervision of all equipment, such as making sure all trucks and machinery involved in the works are checked for defective exhaust systems and general servicing;
  - Installation of localised noise barriers between piling rigs and nearby sensitive receptors including adjoining day care centre;
  - Noise and vibration monitoring during construction particularly out of hours works;
  - Selection of quietest feasible construction equipment;
  - Use of rock saws and ripping where feasible in preference to rock breakers if rock removal is required (unlikely);
  - Localised treatment, such as barriers, shrouds and the like around fixed plant, such as pumps, generators and concrete pumps;
- In the event that monitoring confirms non-compliance of the performance criteria, the Site Manager or delegated personnel shall undertake any necessary measures to achieve compliance. Corrective actions may include:
  - Repairs to exhaust silencers;
  - Relocation of the relevant activity; Alteration to the hours of operation of the specific machinery; and use of alternative machinery.

The Project Manager is to be notified in the event of non-compliance.

Use **Table 3** to record occasions or refer to Section 5 of the CEMP for Community Consultation when notifications to the community take place. Use **Table 4** to record any vibration complaints.

Table 3: Schedule of Community Liaison				
Date of Advice	**Medium**	**Area Covered**	**Activity**	**Position & Signature**

Table 3: Schedule of Community Liaison				
Date of Advice	**Medium**	**Area Covered**	**Activity**	**Position & Signature**

Table 4: Schedule of Noise/Vibration Complaints and any Noise Incidences			
Date	**Complaint/Incident**	**Response**	**Position & Signature**

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APPENDIX J: ODOURS AND DUST CONTROL PLAN

1. PURPOSE

To address the requirements of the Development Consent in reference to an odour and dust control Plan for construction of the Green Square Integrated Community Facility and School at 3 Joynton Avenue, Zetland NSW (the site).

2. SCOPE

Applies to all Hutchinson Builders work-related activities, workplaces, employees, contractors, subcontractors and visitors associated with the Project. The following aspects will be covered to determine the environmental risk for each.

- Odour Control
- Dust Control

3. PROCEDURE

This Odour and Dust Control Plan details how Hutchinson Builders will undertake works associated with the Project in accordance with the following environmental regulations:

- Contaminated Land Management Act 1997; and
- Water Management Act 2000.

4. CONTROL

4.1 Odour

Odour issues will be minimal for demolition and construction activity on site. All plant and machinery involved in the Works will be regularly serviced and checked for exhaust emissions and catalytic converters. Waste will be regularly removed from the Site.

Cover excavated material immediately after stockpiling, use odour suppressants and foggers, use biodegradable foams to control odour generated from the excavation of contaminated soils. Cover odour-generating stockpiles with material covers e.g. geo-textile.

4.2 Dust

To control dust generation where necessary, water will be sprayed at the source of origin and surrounding areas to prevent airborne dust particles migrating into the surrounding environment. Management of dust prevention is to be developed by the Head Contractor and included in the detailed construction management plan. Please refer to Fact Sheet 2 in Appendix M for details of dust control.

Additional precautions that will be implemented during the Works include the covering of all haulage trucks with tarpaulins, management of dirt tracking to and from the Site and monitoring of weather conditions (including wind). Management and contingency plans will be developed to prevent any foreseeable impacts from dust. The Head Contractor will visually monitor for dust generation regularly throughout the Works.

Dust may be generated during the excavation, the following management measures at to be followed to minimise the dust generation:

- Design and designated areas for soil stockpiles;
- Locate stockpiles to low wind areas (use windbreaks and screens if possible);

- Shape stockpiles into low height to width ration (recommend less than 1.5m height);
- All stockpiles are to be covered if remaining for periods longer than 24 hours;
- Install windbreaks and screens (if required);
- Dust suppressants (such as water, sprays and carts),;
  Note: If water spraying is required for site dust suppression, care will be taken to control the quantities of water sprayed so that run-off is not generated.
- Ensure access to water sufficient to water down the excavation, stockpiles and/or treatment operations if dust generation becomes significant;
- Spoil will be transported to and from the site via covered trucks. A single designated vehicle path will be utilised to enable the appropriate management of spoil transport.
- Cease work during excessively windy periods;
- Clean residual soil or sediment at the site as soon as practical;
- Check plant and machinery regularly.
- All construction plant and machinery will be properly maintained and fitted with emission control devices complying with the Australian Design Standards.
- Switch off plant and machinery when not in use, and do not leave idling.
- Vehicle use on unsealed surfaces will be voided where possible.
- All emission controls used on vehicles and construction equipment would comply with relevant NSW DPIE standards as provided under Section 124 of the POEC Act.

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APPENDIX K: ENVIRONMENTAL INCIDENT RESPONSE PLAN

1. PURPOSE

The intent of this Environmental Incident Response Plan (EIRP) is to assist site personnel to adequately respond to a potential emergency situation. It details specific responsibilities and processes to be implemented in the event of an environmental incident that could result in environmental impact.

This document shall be read in conjunction with the CEMP and associated Hutchinson Builders internal procedures.

2. SCOPE

Applies to all Hutchinson Builders work-related activities, workplaces, employees, contractors, subcontractors and visitors associated with the project.

3. RESPONSIBILITIES

Responsibilities of key personnel with regards to implementing this plan are as set out in the following section.

The Hutchinson Builders Project Manager shall be accountable for the implementation of this Environmental Incident Response Plan and shall be assisted in daily activities by the Hutchinson Builders nominated "Incident Response Coordinator (IRC)".

3.1 Construction Manager

Table 1: Construction Manager Responsibilities	
Responsibilities	**Frequency**
Ensure that activities are assessed for risk prior to commencement	Continually
Managing the emergency from a corporate level	As required
Informing the Managing Director, Systems Manager and Operations Manager of an incident	On occurrence
Participation in the investigation of serious incidents	On occurrence
Provide appropriate resources to implement the processes defined in this Plan	As required

3.2 Project Manager

Table 2: Project Manager Responsibilities	
Responsibilities	**Frequency**
Manage environmental Incident response on the project site level	On occurrence
Report Incidents to the appropriate regulatory authority in accordance with Section 5.7 of the POEO Act 1997 (Pollution events causing or threatening 'material harm' to the environment.)	On occurrence
Review and implement this plan	As required
Ensure that foreseeable risks (potential emergency situations) are identified, documented on Workplace Risk Assessments and controlled appropriately	Continually
Provide appropriate resources to implement the processes defined in this Plan (Nominate the Incident Response Coordinator)	As required

Table 2: Project Manager Responsibilities	
Responsibilities	**Frequency**
Ensure site personnel are trained in environmental incident procedures	As required
Inform the Construction Manager of environmental incidents	On occurrence
Inform the Client representative of environmental incident status	On occurrence
Notification of and participation in the investigation of serious incidents	On occurrence
Monitor the effectiveness of implemented incident control measures	Continually
Keep Hutchinson Builders management informed of the ongoing situation regarding an environmental incident	As required

3.3 Project Supervisor

Table 3: Project Supervisor Responsibilities	
Responsibilities	**Frequency**
Review and implement this Plan	As required
Ensure that foreseeable risks (potential emergency situations) are identified, documented on Workplace Risk Assessments and controlled appropriately	Continually
Notification of and participation in the investigation of serious incidents	On occurrence
Implement incident control procedures	As required
Monitor the effectiveness of implemented emergency response control measures	Continually
Accounting for all personnel working for Hutchinson Builders and various subcontractors if an environmental incident occurs.	On occurrence
Co-ordinating with the incident response coordinator	As required

3.4 Hutchinson Builders Workforce

Table 4: Hutchinson Builders Workforce Responsibilities	
Responsibilities	**Frequency**
Notify the occurrence of all hazards and incidents to the Hutchinson Builders Project Supervisor / Project Manager	All Incidents
Adhere to all incident response related instructions provided by supervision or Emergency Response Coordinator	Continually

3.5 Hutchinson Builders Subcontractors

Table 5: Hutchinson Builders Subcontractors	
Responsibilities	**Frequency**
Notify the Hutchinson Builders Project Supervisor / Project Manager of activities being performed that are high risk or could be cause for an emergency situation	Continually
Notify the occurrence of all hazards and incidents to the Hutchinson Builders Project Supervisor / Project Manager	All Incidents

Table 5: Hutchinson Builders Subcontractors	
Responsibilities	**Frequency**
Adhere to all incident response related instructions provided by supervision or Emergency Response Coordinator	Continually

3.6 Incident Response Coordinator (IRC)

The IRC is to be either the Project Manager or Supervisor.

Table 6: IRC Responsibilities	
Responsibilities	**Frequency**
Ensure site personnel are trained in incident response procedures	Continually
Implement incident control procedures	As required
Determine the level of response required to adequately manage an Environmental Incident	On occurrence
Coordinate with emergency services, client and other stakeholders throughout incident.	Continually
Notify the occurrence of an environmental incident to the Hutchinson Builders Project Supervisor / Project Manager	Continually
Maintain communication with Hutchinson Builders Management throughout emergency situation	As appropriate

4. GENERAL

In preparation for an environmental incident occurring, the risks associated with the site's activities and the interaction of our activities with other stakeholders will be identified through the daily hazard assessment. Potential Hazards and risks will be identified, assessed and suitable controls implemented.

5. EMERGENCY WARNING

In the event of an emergency on this site, personnel will be alerted via the following methods:

- Selected UHF Radio Channel communication through "Emergency, Emergency" call,
- Verbal communication if in ear shot,
- Building alarm systems,
- An aerosol siren, or
- Non-verbal hand signals / gestures to indicate if something is wrong.

6. POTENTIAL SITE SPECIFIC EMERGENCY SITUATIONS

On review of the scope of works, the following potential environmental incidents have been identified;

- Fire (building / equipment / plant / explosion / vegetation);
- Hazardous substance spillage or disturbance;
- Uncontrolled pollutant release;
- Flooding;

- Traffic Accidents; and
- Injury to workers or public.

7. EMERGENCY RESPONSE EQUIPMENT

The Hutchinson Builders Project Manager shall ensure environmental incident response equipment is appropriate to the tasks being performed and is suitably maintained, serviced and strategically located around the site. Allocation of sufficient resources to implement emergency response procedures will include spill kits, fire extinguishers, erosion and sediment controls, plant, equipment and personal protective equipment.

7.1 Fire Fighting Equipment

- Fire extinguishers shall be suitable for the type of works to be performed;
- Fire extinguishers shall be located in easily accessible locations; and
- Employees shall be trained in the correct identification and application of the fire-fighting equipment.

7.2 Hazardous Substances

Spill kits appropriate to the quantities and type of hazardous materials in use on site shall be located in close proximity to where work is being done or where the material is stored.

Before commencing any clean-up of hazardous substances spill, a specific risk assessment shall be conducted to ensure site personnel are not exposed to any significant yet not considered risks.

7.3 Control of Discharge of Pollutants

Equipment will be maintained to control the potential discharge of pollutants to the environment. This will include erosion and sediment controls (sediment fence, sand bags, geotextile material covering), dust suppression control (e.g. Water carts, sprays) plant and machinery (e.g. pumps) to undertake remediation if required.

7.4 Communication Devices

Devices for communication on this site will be via:

- UHF radio, channel to be confirmed; and
- Mobile phone device.

8. EMERGENCY RESPONSE

An environmental incident response drill shall be completed within the first 6 weeks of establishment on site and thereafter at 6 monthly intervals or as otherwise determined by the Project Manager.

Such drills will include all personnel on site at any specific time (extends to employees, subcontractors and visitors)

Note: Drills should simulate various potential emergencies (fire, chemical spills or personnel injury) so that the response can be practiced.

9. EMERGENCY RESPONSE PROCEDURES

The following incident procedures are a guide of what to do in the event of an environmental Incident and shall be communicated to all site personnel at their induction.

Table 7: Emergency Response Procedures

Event Type	Response
Any incident and emergency	• Assess for danger to workers and general public; • Notify local emergency services if required based on severity of situation; • Cease activities and implement appropriate response procedures to minimise environmental impact; • Notify the Hutchinson Builders Project Supervisor and Project Manager; and • Notify regulatory authority and project client where required.
Water pollution	• Switch off pump, close valves, seal hoses, plug leaks (stops water source); • Form a barrier around the discharge i.e. booms, sand bag bunds; • Divert discharge away from drainage lines and water courses; • If the discharge is contained on land, then reclaim the substance. This may be achieved by soaking up with spill response equipment or pumping substance back into where it has been pumped from e.g. water cart, bund, sediment basin, holding tank etc. Do not pump from water bodies.
Noise and or vibration above allowable limits	• Cease noise and vibration generating activities; • Liaise with any affected community stakeholders, manage complaints; • Reassess construction methodologies and plant items used; and • Monitor noise and vibration impacts in accordance with compliance levels.
Air pollution e.g. dust, odour	• Cease dust / odour generating causing works; • Engage water cart to wet down exposed soil surfaces; • Cover odour generating stockpiles with material covers e.g. geo-textile; and • Discontinue works in windy conditions.

Table 7: Emergency Response Procedures	
Event Type	**Response**
Damage to property including cultural heritage	• Cease construction activities and make the area safe; • Notify Project Manager; • Liaise with any affected community stakeholders, manage complaints; • Cultural heritage – notify appropriate regulatory authority; and • Limit access to area with safety barriers.
Non approved impact to vegetation	• Cease construction activities and make the area safe; • Notify Project Manager and Project Supervisor; and • Notify appropriate regulatory authority.
Death or injury to native fauna	
Unlawful waste disposal	
Fire, including bushfire emergencies	• Extinguish the fire immediately if safe to do so using fire extinguishers, fire hose, water carts etc.; • Remove any hazardous or flammable construction materials from the area where possible e.g. fuel containers, plant and equipment if safe to do so; • If unsafe, notify the local Fire Control Services and safely evacuate the area; • If required, notify local residents to evacuate affected areas; • No hot works to be carried out during "Total Fire Ban" days; • In the event of a bushfire being imminent, the Hutchinson Builders Project Supervisor and Project Manager are to call a cease to all works until it is deemed safe to do so by the local authorities; • Should a bushfire emergency occur while workers are on site, all personnel are to be evacuated immediately to the emergency evacuation point beside the site lunch room and wait there for further communication from Hutchinson Builders management. Communication methods as noted in section 5 and 7.4 above should be used to advise of the emergency.
Flood	• Do not store construction materials e.g. (Plant equipment, stockpiles, containers etc.) within the creek line, low lying or flood prone areas;

Table 7: Emergency Response Procedures	
Event Type	**Response**
	• Monitor weather conditions continually in preparation of flood events; • Remove plant and equipment from, low lying or flood prone areas in times of heavy or prolonged rainfall; • Restrict access to site by blocking access routes, installing warning signs and informing the wider construction team; and • Continue to monitor weather conditions and inform construction teams accordingly.
Sediment discharge	• Do not store stockpiles within the creek line, low lying or flood prone areas; • Contain the discharge- Form a barrier around the discharge i.e. sediment fences, sand bag bunds; and • Recover the sediment – use excavators, shovels and other earth moving equipment to return sediment to appropriate area or disposal to a licensed facility.
Spill	• Stop the spill - Switch off pump, close values, seal hoses, plug leaks; • Contain the spill - Form a barrier around the discharge i.e. booms, sand bag bunds; • Recover the spill – use absorbent material from the spill kits to soak up the spilt liquid. Can also use soil, sand or absorbent pads; • Collect the contaminated sorbent - Brooms can be used to sweep up the sorbent material and put it into buckets or garbage bags and directly into waste bins; • Dispose of the waste – in accordance with its waste classification; and • Restock the spill kit and report to the Project Manager.

10. INCIDENT RESPONSE CONTACT DETAILS

Table 8: Incident Response Contact Details		
Issue	**Contact**	**Number**
Life threatening emergencies Spills involving Mercury (call HAZMAT)	Fire Brigade (including HAZMAT), Ambulance or Police	000
Safety, Environmental issues, incidents, complaints, contamination sites, heritage discoveries etc.	Hutchinson Builder Site Manager – Michael Metherell Greencap Environmental Consultant – Dr. Brad Zhao	0428 366 022 0407 253 038
Pollution incidents	EPA	131 555 or 02 9995 5000 (24 hours)
	Ministry of Health	9391 9000
	SafeWork NSW	13 10 50
	City of Sydney Council	(02) 9265 9333
Electricity Supplier (NSW) Loss of supply, fallen wires, or other electrical emergency	TransGrid Endeavour Energy	1800 027 253 131 003
Discovery of Aboriginal heritage items	OEH Aboriginal heritage division.	02 9873 5800
Discovery of Non-Indigenous heritage items	Heritage Council	131 555 or 02 9995 5000 (24 hours)
Discovery of human skeletal remains	NSW Police Hutchinson Builder Site Manager - Michael Metherell	000 or 112 (from a mobile) 0428 366 022
Water and sewer mains	Sydney Water	13 20 90 (24 hours)
Injured animals	WIRES – Sydney	(02) 8977 3333

Table 9: Hutchinson Builders Contacts		
Hutchinson Builders Site Contacts		
Position	**Contact Name**	**Contact Number**
Michael Metherell	Site Manager	Mob: 0428 366 022
Hutchinson Builders Off-Site Contacts		
Position	**Contact Name**	**Contact Number**
Hutchinson Builders Sydney Office	John Koumoukelis	(02) 8344 2424

11. NOTIFY REGULATORY AUTHORITY

In the event of an environmental incident causing or threatening 'material harm' to the environment, the following authorities must be notified immediately (in this order):

- The appropriate regulatory authority; either the EPA of SafeWork NSW;
- Ministry of Health;
- Local Council; and
- Fire and Rescue NSW.

Contact numbers can be found in section 10 of this Plan.

12. INCIDENT REPORTING

In the event of an incident, the following will be undertaken:

- A record of the incident will be completed;
- An incident investigation prior to the end of the next business day will be commenced, unless there are statutory or other requirements to commence sooner;
- An incident investigation report will be completed, which, among other things, nominates appropriate timeframes for completing improvement actions arising from the incident investigation, taking into consideration the exposed risk;
- The incident investigation will be completed within 5 Business Days of commencing the incident investigation, unless otherwise agreed by Sydney Water; and

To appropriately maintain a record of all incidences which have occurred on site, the following documentation is utilised:

- An Environmental Incident Register is included in Appendix A of this document.
- An Environmental Incident Form is included in Appendix B of this document.

Any improvement actions contained in the relevant incident investigation report will be implanted within the nominated timeframe.

12.1 Analyse Incident

The Hutchinson Builders Project Manager, in conjunction with the Hutchinson Builders Construction and Systems Managers, shall review the incident and implement effective corrective and preventive actions. Any such actions shall be communicated throughout the company to ensure potential recurrence is minimised on any other sites.

13. MONITORING AND CONTROL

Routine monitoring will be undertaken by the Project Manager and Project Supervisor on control equipment using the Environmental Checklist provided in Appendix B of the CEMP. Workplace inspections will be undertaken periodically to assess compliance with the requirements of this procedure. The table below details monitoring that will be undertaken to minimise the likelihood and to maintain preparedness for environmental incidents and emergencies.

Table 10: Environmental Incident Monitoring

Control Parameter	Target Level
Fire Extinguishers	All Fire Extinguisher inspection tags current.
Spill Response Kits	Adequate size spill kits retained on site. Spill kits located in all excavators and other hydraulic plant.
Sedimentation Controls	Appropriate sediment controls in place and availability of adequate supplies of sedimentation controls.
MSDS available on site	MSDS for all materials used on site available and up to date.

14. REVIEW

The Project Manager shall ensure that the Environmental Incident Management Plan is reviewed after each and every drill or emergency situation.

Results of emergency drills and evacuations shall be communicated back to the site at a toolbox meeting, so all personnel are aware of any improvements.

Appendix A: Environmental Incident and Action (EIA) Register				
EIA Number	**Date Issued**	**Responsible Person**	**Date Due**	**Date Closed**

Appendix B: Environmental Incident and Action (EIA) Form			
Date Issued:		**Issued to:**	
Issued by:		EIA Number:	
Close Out Date:		EIA Type:	
1. Details of Environmental Incident			
Issued By:		Date:	
2. Root Cause Analysis			
3. Corrective Preventative Action to be Undertaken			
4. Corrective Preventive Action taken to Prevent Recurrence			
Responsible Person		Date EIA to be Completed	
Signed		Date Signed:	
5. Verification that Corrective/ Preventive Action is Complete			
Closed		Date	
Further Action Required?			

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APPENDIX L: UNEXPECTED FINDS PROTOCOL – CONTAMINATION

1. PURPOSE

To address the requirements of the Development Consent in reference to an Unexpected Finds Protocol for the construction of the Green Square Integrated Community Facility and School at 3 Joynton Avenue, Zetland NSW.

2. SCOPE

Applies to all Hutchinson Builders work-related activities, workplaces, employees, contractors, subcontractors and visitors associated with the project.

3. PROCEDURE

This Unexpected Finds Procedure should be applied by workers when suspected contamination such as potential hydrocarbons and asbestos-containing material (ACM) are unexpectedly found on site. Such an occurrence may occur:

- during excavation works;
- during demolition and building work;
- following soil disturbance after a storm or other unexpected event; or
- as a result of illegal dumping.

3.1 Prior to Work

Review

Undertake a review of any relevant information of the site (Data Gap Assessment (WSP, 2022) and Remedial Action Plan (WSP, 2020))

If contamination is present within the work area, seek advice from the Site Manager who will consult the Environmental Representative prior to works commencing.

Inspect

Prior to commencing works, inspect the work area.

Is there evidence of historic or industrial activities, is there evidence of construction and demolition waste?

If any of the above are identified within or immediately adjacent to the work area, contractors should implement increased diligence during excavation works

3.2 During Work

Unexpected Find Occurs

The Workers should:

- Immediately cease work;
- Leave the area;
- Isolate the area; and
- Contact the Protocol Controller (site manager) as soon as possible.

Protocol Controller Attends Site

The Protocol Controller should:

- Install controls to further manage the isolation of the area. This may be achieved by use of warning signage and barricading;
- Cover stockpiled materials with tarpaulin or builders plastic and install appropriate stormwater and sediment controls to prevent the uncontrolled escape of potential contamination leaving the area; and
- Engage the services of a suitably qualified Asbestos/Environmental Consultant to assess the work area for contamination.

Asbestos/Environmental Consultant Attends Site.

The Consultant should decide on the presence of contamination in the work area.

No Contamination Present

The Protocol Controller should:

- Inform Workers that the suspected material is not contaminated;
- Direct Workers that they may recommence work; and
- Attach relevant documentation used in the determination into the site safety plan.

Contamination Present

The Protocol Controller should:

- Consider the recommendations of the Asbestos/Environmental Consultant;
- Consider arranging for the contaminated material to be removed to a suitably licensed facility; and/or
- Consider redesigning the work process so that the contaminated material is not disturbed if possible.

Area Safe to Re-Enter

Once the area has been deemed by a competent person to be safe to re-enter, the Protocol Controller should:

- Inform Workers that the work area is safe to re-enter; and
- Include any relevant documents (e.g. asbestos removal clearance certificates, bulk sample analysis results and air monitoring results) into the site safety plan.

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APPENDIX M: ENGINEERING CONTROL FACT SHEETS

Dust Control

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Dust Control

What is it?

Dust control refers to minimising the amount of dust that enters the air and stormwater system from your site.

Why is it important?

Dust blowing from your site has a four way impact. Firstly, it is a nuisance to neighbours which can result in poor relations or complaints about your company.

Secondly, it can result in adverse health effects like asthma in workers and others. Thirdly, blown away materials are blown away dollars, and finally, it is dangerous to the environment.

The environmental impact of dust and sediment is significant. They smother animals and plants that live on the bottom of creek beds and make the creeks shallower. They carry nutrients which can lead to algal blooms and fish kills, as well as weeds which can take over from native plants.

Even though mud and dirt are natural they are still serious pollutants that must be prevented from entering our waterways.

What do I need to do?

Before building commences:

Assess the dust potential of your site and decide on dust controls. If there is high risk of dust generation then barriers to divert the wind up and over the site can be constructed. These include shade cloth walls of height one-fifth the site length. Document controls on your Soil and Water Management Plan and ensure staff are aware of its importance.

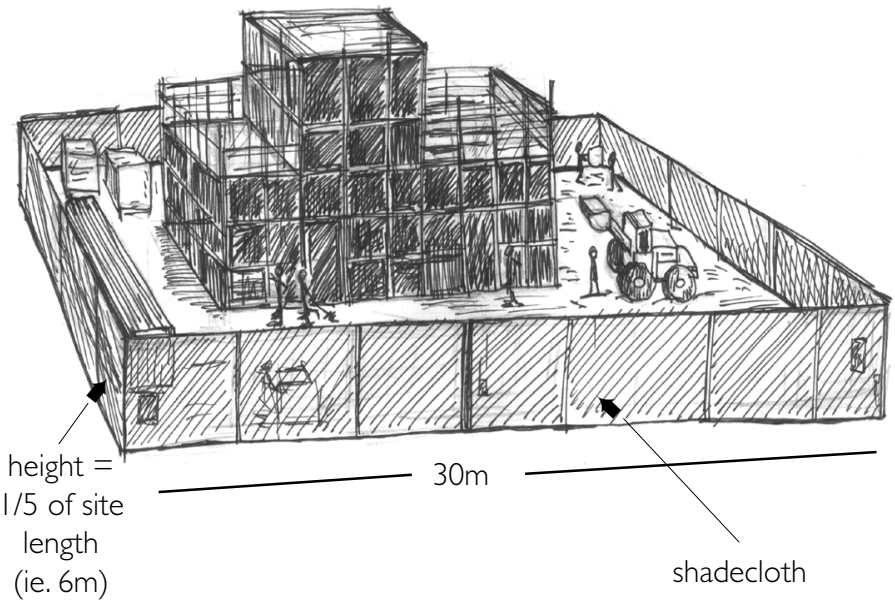
Installing the controls:

Good sediment management can alleviate most of the dust problem. Some of the steps that can be taken to minimise dust include:

- Maintain as much vegetation as possible
- Cover materials and stockpiles
- Ensure that all equipment has dust suppressors fitted
- Dampen the site slightly during excavation or when dust is being raised. Be careful not to wet it to the point of creating polluted runoff.
- Ensure that vehicles only leave via the stabilised site access
- Minimise the amount of the site that is disturbed at any one time

All of these actions will help to minimise the amount of sediment loose on the site and therefore the dust that can be generated.

If dust becomes too serious on windy days the best option is to cease work until wind conditions are suitable.



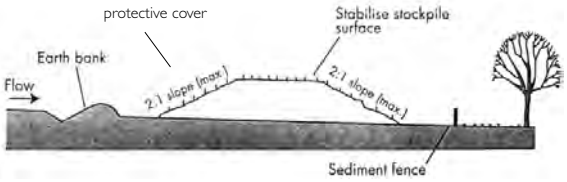
Fact Sheet 2

Maintenance of the sediment controls:

Dust collected around sediment controls will need to be removed regularly to maintain effectiveness. Built up material can be restockpiled, used on site or collected by an Earth Moving Company.

Inspect and sweep roads at the end of each day and when rain is likely.

On larger sites dust monitoring should be undertaken. The National Health and Medical Research Centre (NHMRC) guidelines require an annual mean of 90ug/m^3 for total suspended particulate.



Remember:

Everyone has a responsibility to protect the environment. The site supervisor is required to make sure that all workers, including sub-contractors are doing the right thing and all workers are required to notify their supervisors and Council if they see pollution occurring.

It is illegal for any substance other than rainwater to enter the stormwater system. If you do have an accident and pollution occurs you are required by law to notify the Council so that they can work with you to minimise any harm to the environment.

Penalties for polluting the stormwater system range from $750 on the spot fines to $1 million and seven years in gaol. Both companies and individuals can be fined.

Council Officers and the EPA enforce the environmental legislation and do routine inspections of building sites. They can issue notices to make companies clean up sites, change the way they are managing the sites and if necessary, cease work. They will attempt to work with you but penalties will be issued if a satisfactory environmental outcome is not achieved.

List of fact sheets available from Council:

1. Diversion of Upslope Water
2. **Dust Control**
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5. Protected Concrete, Brick and Tile Cutting
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7. Protected Service Trenches
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10. Protected Waste Management and Chemical Storage
11. Protecting Vegetation
12. Protection of Gutter and Street Stormwater Drains
13. Protection of Site Stormwater Pits
14. Sediment Controls
15. Soil and Water Management Plans
16. Stabilised Site Access

For further information on preventing pollution from building and construction sites contact your local council:

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The Law in detail:

Pollution from building and construction sites is regulated under the Protection of the Environment Operations Act 1997 (POEO Act). Under this Act it is an offence for anyone to let any substance other than rainwater enter a waterway including the stormwater system.

The Council and the Environment Protection Authority (EPA) can issue notices and penalties on building and construction sites to protect the environment. There are three kinds of notices:

- *Clean up notices* can be issued to require clean up of sites.
- *Prevention notices* can be issued if an activity is being carried out or is suspected to be carried out in an environmentally unsatisfactory manner. The prevention notice requires certain action to be taken and can be appealed in the Land and Environment Court.
- *Prohibition notice* can be issued to require work to cease for a given time.

When a company receives a Clean Up or Prevention Notice they may be liable for a $320 administration fee. They can also be charged all costs incurred by the EPA or Council to ensure compliance with the notice.

As well as notices there are three levels of offences that apply to building and construction sites if they pollute the environment:

- *Tier 1 Offences* are the most serious and involve wilful or negligent behaviour resulting in harm to the environment. The penalty is up to $1 million and 7 years imprisonment. In defending against a Tier 1 offence the company or individual will need to show that they had no control over the pollution event and that they took reasonable precautions and exercised due diligence to prevent the offence.
- *Tier 2 Offences* have a maximum penalty of $250,000 for a corporation and $120,000 for an individual. Further daily penalties apply to continuing offences.
- *Tier 3 offences* are dealt with by penalty infringement notices, similar to speeding fines. These notices impose a fine that can be paid or defended in court. The maximum penalty is $1500 for a corporation or $750 for an individual.

Public Register of Notices: Councils and the EPA are required to keep a public register of all companies and individuals who are issued notices. So in addition to the fines and lost time in cleaning up, companies who pollute also risk damaging their reputation. This is a foolish thing to do when the public are becoming more and more concerned about the environment and are starting to look at a company's environmental record when deciding which company to use.
If you do have a pollution incident which harms the environment, under the POEO Act, you have a *duty to notify* the Council or EPA. They can then work with you to minimise the harm to the environment. The maximum penalty for failing to notify them are $250 000 for corporations or $120 000 for individuals. Further daily penalties apply to continuing offences.

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'Do It Right On-Site'

Soil and Water Management for the Construction Industry

'Do it right on-site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Impact of Building and Construction Industry on the Environment:

The Building and Construction Industry has a large impact on the environment, in particular our waterways. Sand, soil, cement slurry, paint and other building materials that enter our waterways kill fish and aquatic plants, silt up streams, and block stormwater pipes which leads to increased flooding.

Due to the high number of construction sites even small amounts of pollution from each site is enough to cause significant damage to our waterways. This project aims to work cooperatively with the construction industry to find ways to prevent pollution. Together we can make a difference.

Who is responsible for ensuring there is no pollution from the site?

Everyone! Under legislation anyone who places material into the stormwater system or even in a position where it may enter the stormwater system is guilty of an offence. Depending on the extent of the pollution, penalties range from on-the-spot fines of $750 to a maximum of $1 million or 7 years in gaol. It is the Builder/Site Supervisor's responsibility to ensure that all workers on site, including sub-contractors, do not breach environmental laws. Workers have a responsibility under the law to notify their supervisors if they see a pollution incident which harms the environment. If the supervisor cannot be contacted, workers should notify the Council.

What are the benefits of preventing pollution?

Benefits to the Builder

- ✔ a better looking more saleable site
- ✔ reduced clean up costs
- ✔ less mud and dust problems
- ✔ improved occupational health and safety on site
- ✔ money saved due to reduced stockpile losses
- ✔ improved drainage and reduced site wetness which will result in less down time, earlier completion and earlier sales!
- ✔ fewer public complaints
- ✔ no fines, no problems with Council
- ✔ better image within the community
- ✔ marketing advantage to win work from environmentally conscious clients
- ✔ better fishing due to improved water quality!!

Benefits to the Owner

- ✔ Reduced site rehabilitation/landscaping costs because the soil and vegetation is still on the site!
- ✔ Peace of mind knowing that their home hasn't caused damage to the environment
- ✔ Less chance of flooding as the stormwater drains are not clogged up with sediment

Benefits to the Community

- ✔ less risk of flooding
- ✔ healthier waterways with more plants and animals
- ✔ increased recreational opportunities in and around our waterways
- ✔ increased sales as surrounding environment is more attractive

DO IT RIGHT ON SITE – ENVIRONMENTAL INFORMATION FOR BUILDERS

How can you prevent pollution from the site?

Step 1: Planning

Prepare a soil and water management plan, also known as a sediment and erosion control plan. This will be required prior to Council issuing you a Construction Certificate (either at DA stage or as a condition of consent). The Soil and Water Management Plan should outline the methods you will use to prevent pollution of the stormwater system throughout the life of the construction period. There may be different controls needed as the site develops due to changes in drainage patterns and location of building materials. These stages and their controls must be shown on your Soil and Water Management Plan. Sample Soil and Water Management Plans are available from Council, however you must develop a plan specific to your site.

Step 2: Installation of soil and water controls

Before work commences install the sign provided by the Council and ensure that all workers know their responsibilities. Set up the soil and water controls. A recommended sequence for doing this is:

1) establish a single stabilised entry/exit point.
2) install sediment fence(s) along the low side of the site.
3) divert up slope water around the work site and stabilise channels.
4) clear only the areas necessary - fence off no go areas where vegetation is to be kept - and plan the staging of work to minimise the amount of soil exposed at any time. Revegetate any areas that will be left exposed for more than 14 days.
5) store stockpiles on site and place sediment controls around them. If storage room is not available on site, seek Council approval for an offsite storage area with pedestrian access and appropriate soil and water controls.
6) stabilise exposed earth banks (use vegetation or erosion control mats, put sediment fence down slope).
7) install onsite waste receptacles (mini-skips, bins, wind proof litter receptors).
8) commence building activities.
9) install roof downpipes prior to frame inspection.

Step 3: Maintenance of soil and water controls

Soil and water controls should be checked daily to ensure that they are operating effectively. Maintenance that will be required includes:

- Removing sediment collected by sediment fences and catch drains
- Topping up the gravel on the stabilised entrance way
- Repairing erosion in drainage channels
- Inspecting roadways and gutters and sweeping up any sediment

Remember that the soil and water controls may need to be modified if the slope and drainage paths are changed as the site develops. Best practice includes anticipation of risks as well as being prepared for abnormal circumstances and emergencies eg: storage of clean up materials and extra sediment fence on site just in case.

Step 4: Finalisation of site

Ensure the site is stabilised -no exposed soil remains- before removing the soil and water controls. If landscaping is not completed prior to handover ensure that the new owners are aware of their responsibility to prevent pollution from entering the stormwater system.

Ways you can reduce erosion & control sediment on a building or construction site

Follow these site management practices and you will help reduce impact on our waterways . . .

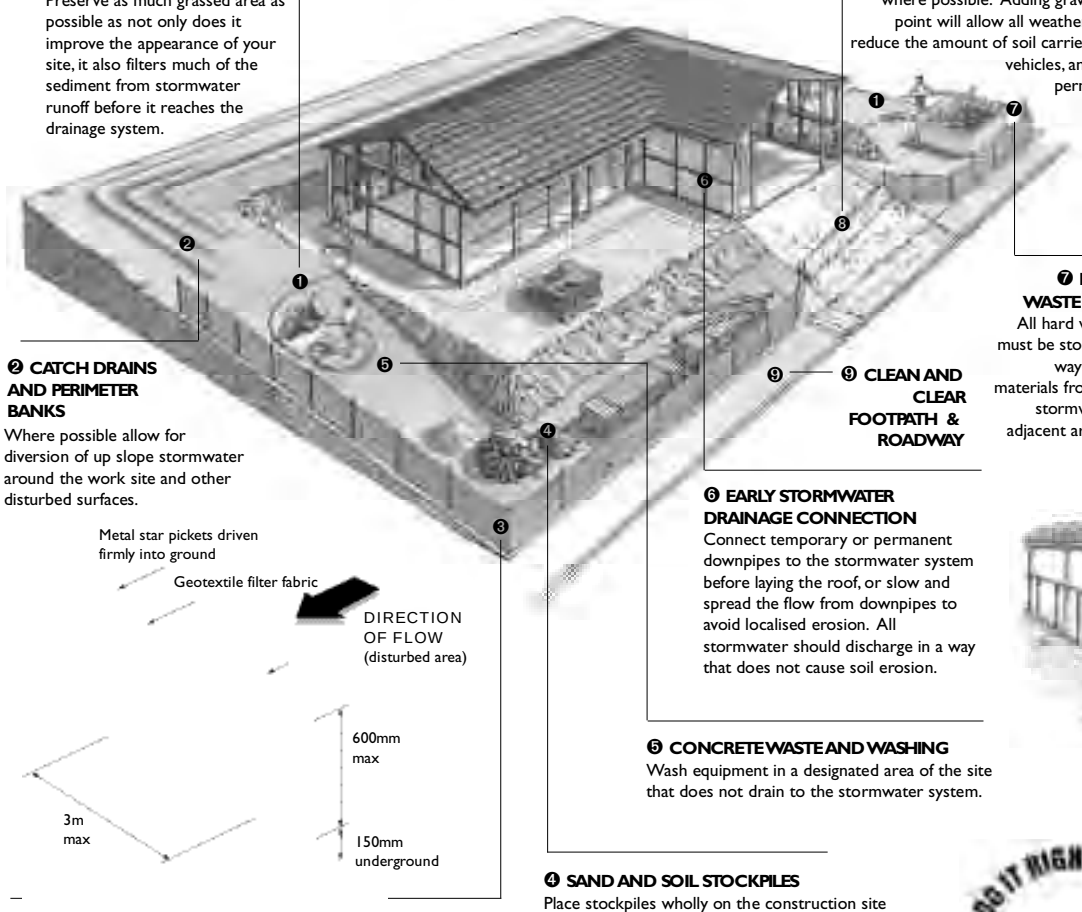


Illustration reproduced courtesy of Brisbane City Council

Protected Stockpiles

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Protected Stockpiles

What are they?

They are materials such as sand, gravel, topsoil, mulch and woodchip stored in a way that will not enter the stormwater system.

Why are they important?

Stockpiles are at risk of being washed or blown away and polluting stormwater. Loose materials in heaps with steep sides and impervious foundations are most at risk. Not only does this affect the environment but it is expensive to the builder, increasing the amount of materials needing to be purchased for the development.

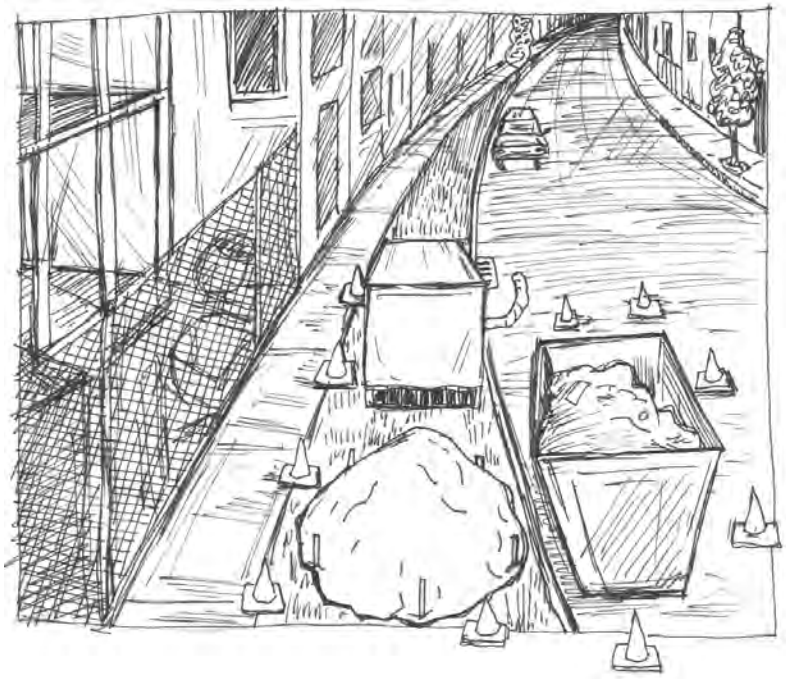
The environmental impact of these materials is significant. Mulch and woodchip decompose absorbing all the oxygen in the water resulting in suffocation of animals. Sediment settles making creeks shallower and smothering animals and plants that live on the creek beds. This shallower water depth also results in the suns rays heating the water. Many native plants and animals can not survive in this hotter water and die.

Fact Sheet 8

What do I need to do?

Before building commences:

Identify a protected storage area for stockpiles. This should be inside the site under cover, away from stormwater flow paths, with erosion control measures such as sediment fence, gravel sausage or straw bales placed around them. If there is no room on site Council approval will be needed to store materials on the kerb or footpath. Materials should be stored in sand bags or bale/pallet containers with sediment controls around them. Document your storage area on the soil and water management plan and ensure staff are aware of its importance.

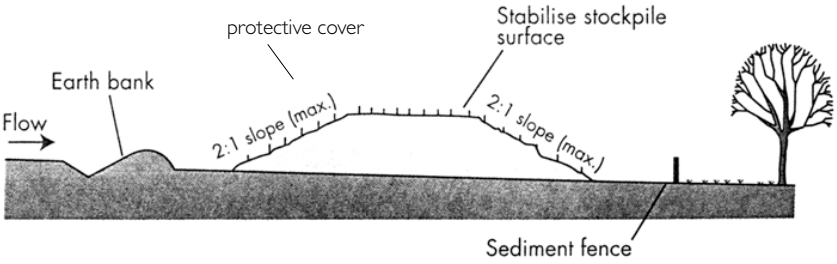


Installing the controls:

1. Locate stockpile away from stormwater flow paths, roads and hazard areas (ideally at least 5m away).
2. Place on a level area as a low, flat, elongated mound.
3. Where there is sufficient area topsoil stockpiles shall be less than 2m in height.
4. Construct an earth bank on the upslope side to divert run off around the stockpile and a sediment fence 1 to 2 m downslope of the stockpile (or sand bag, gravel sausage).
5. Stockpiles should be covered during windy conditions, rain or unattended site periods.
6. Once the roof has been installed on the frame, move stockpiles inside.

Maintenance of the controls:

Stockpiles should be checked and covered at the end of each day. Materials trapped by the down slope controls should be removed regularly to maintain their effectiveness. Built up material can be re-stockpiled, used on site or collected by an Earth Moving Company. Incorrect storage of stockpiles is a major source of stormwater pollution. All site workers, subcontractors, and delivery drivers should be advised of their responsibilities. Delivery drivers should be given a designated location to deliver materials on site.



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THE DRAIN IS JUST FOR RAIN

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Protected Wash Areas

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Protected Wash Areas
What are they?

Protected Wash Areas refers to having a designated spot on site that does not drain to the stormwater system for washing of all painting, plastering, concreting and other dirty equipment.

Why are they important?

Even at low concentrations water soluble paints (acrylics) raise the turbidity in creeks which reduces oxygen and light, resulting in plants, fish and frog deaths. Oil or turps based paints form a thin film over the surface of water, starving insects, frogs, and fish species of oxygen. They can also contain heavy metal components that are highly toxic and irritating to all animal species including humans. Concrete alters the pH of the water making it too alkaline for many plants and animals to survive. Protected Wash Areas are required to trap silt and pollutants and prevent them entering the stormwater system.

What do I need to do?

Before building commences:

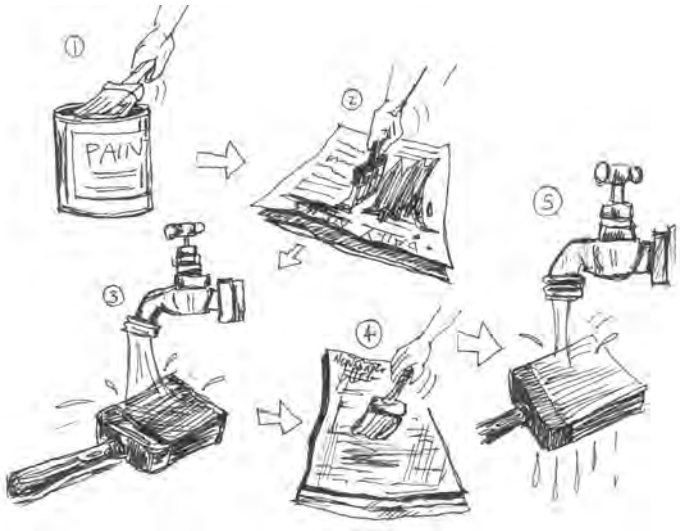
Choose a site for the wash down area that is away from drainage lines and stormwater pits. Show its location on the Soil and Water Management Plan and ensure all staff are aware of it.

Installing the controls:

The wash down area should have sediment controls around it and be large enough to hold all waste water generated. It sould be clearly signposted to alert subcontractors and staff of their responsibilities.

Minimise the amount of waste water generated by:

- Sweeping excess dirt and mud off equipment prior to washing.
- With Paint wastes- Spin the rollers and brushes to remove excess paint and return as much as possible to the original container for reuse. For water based paints- wash brushes in small amounts of water over newspaper. This will let the water soak through into the ground and keep the paint residue on the paper. The paper can then be placed in a solid waste bin or taken to a licensed solid waste transfer station. It is illegal to let paint and other liquid wastes contaminate the soil.
- For oil based paints- wash equipment in a series of solvent baths until clean. The solvent can be reused until it becomes saturated with paint. Solvent should be stored in air tight tins to prevent evaporation and disposed of to a licenced solid waste transfer station. It can not be placed in the bin or on the ground.



- Plastering wastes and wash waters should be allowed to dry within the protected wash area and then disposed of either to a bin or taken to a licensed waste depot. Solid wastes from plastering such as calcium sulphate can be used as a modifier in gardens.

Fact Sheet 9

Remember to clean up all site debris- don't sweep or hose it into the gutter.

Maintenance of the controls:

The protected wash area and its sediment controls will need to be emptied of solid residues regularly in order for it to have the capacity to catch and detain waste waters. The larger the area the less often this will need to be done. Solids from this process should be disposed of in a bin or taken to a licensed waste depot.

Remember:

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Protection of Gutter and Street Stormwater Drains

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Protection of Gutter and Street Stormwater Drains

What is it?

This refers to placing sediment collection devices around or in the drains down slope of your site to prevent pollutants entering. ***This should not be your only measure.***

Street drain protection is a backup measure to support your on-site controls.

Why is it important?

The environmental impact of sediment such as mud and dirt is significant. They smother animals and plants that live on the bottom of creek beds and make the creeks shallower. This results in the sun's rays heating the water. Many native plants and animals can not survive in this hotter water. Even though mud and dirt are natural they are still serious pollutants that must be prevented from entering our waterways.

Fact Sheet 12

What do I need to do?

Before building commences:

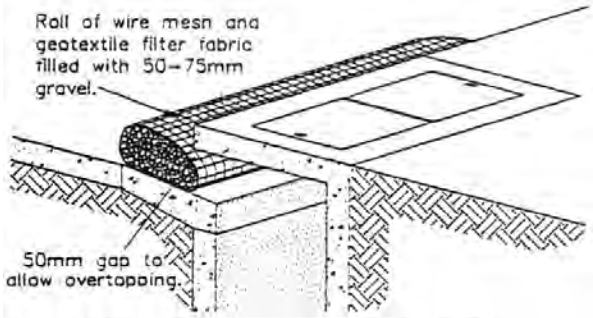
Find the street drains below your work site. Choose the most appropriate method for protection and install prior to commencement of building works. Document these on your Soil and Water Management Plan and ensure staff are aware of its importance.

Installing the controls:

Choose the best down slope control method for your site. Those that collect sediment above the pit are easier to clean but have low storage capacity compared to controls that 'sit' in the pits. Place cones around controls in the gutters or on roads to prevent drivers damaging them.

Portable gravel kerb inlet sediment trap:

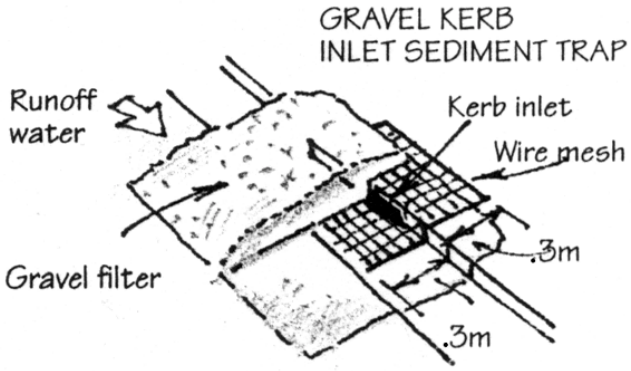
This trap involves a roll of wire mesh and geotextile filter fabric filled with gravel in front of the kerb inlet. It has the benefit of being portable and easily removed for cleaning. Ensure there is a gap at the top to allow overtopping and prevent flooding.



Portable Gravel Kerb Inlet Sediment Trap

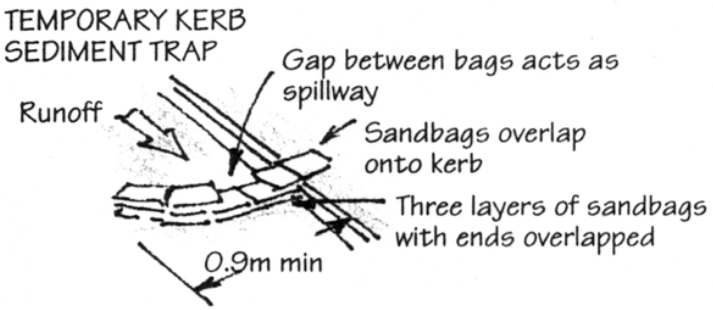
Gravel surface barrier strategy

This method involves placing wire mesh over the drain and placing large gravel upslope of it. The sediment will be filtered out into the gravel with only the clean water entering the stormwater system.



Sandbag kerb sediment trap

Place sandbags in front of flow of water. This will slow down the water enabling sediment to settle out. Two or three of these traps in a row may be required to ensure sediment settles out.



Pit Baskets

There are a range of products that can be placed inside side entry pits that act as baskets or sacks to trap any pollutants that enter. Council permission must be sought before placing any items inside the side entry / gully pit.

Maintenance of the sediment controls:

All sediment collection devices will need to be cleaned regularly to maintain effectiveness. The built up material can be re-stockpiled, used on site or collected by an Earth Moving Company.

Remember:

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Protection of Site Stormwater Pits

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Protection of Site Stormwater Pits

What is it?

This refers to placement of sediment collection devices around any existing stormwater drains on the site.

Why is it important?

Stormwater drains on the construction site are at high risk of having pollutants such as dirt, stockpiled soil, mulch and barkchips washed straight into them. The environmental impact of these materials is significant. Mulch and woodchip decompose absorbing all the oxygen in the water resulting in suffocation of animals. Sediment settles making creeks shallower, smothering animals and plants that live on the creek beds. Many native plants and animals can not survive this and die.

Fact Sheet 13

What do I need to do?

Before building commences:

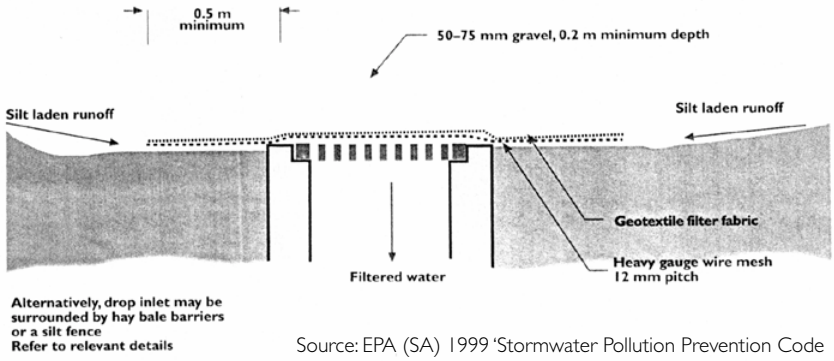
Identify any stormwater drains on the site. Plan the layout of the work site so that any wash down areas, tile or brick cutting areas are not near these drains. Clearly mark the stormwater drains on the site and choose a method of protection for them. Install the protective controls prior to building work commencing. Document all of this on your Soil and Water Management Plan and ensure staff are aware of its importance.

Installing the controls:

There are a range of sediment traps to choose from.

Drop inlet sediment Trap:

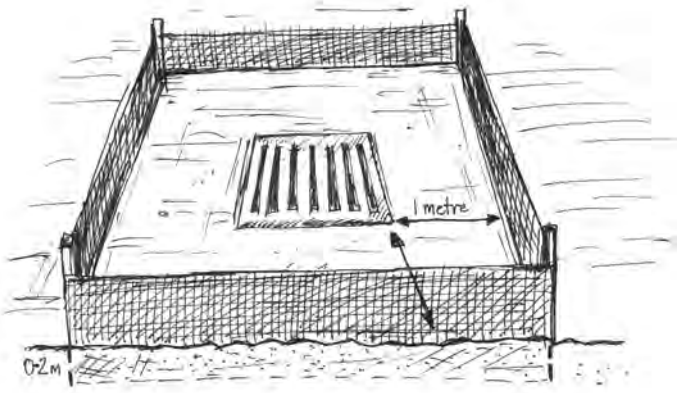
Three layers on top of the drain to trap the sediment. 1) heavy gauge wire netting or mesh 2) geotextile filter fabric with 3) a layer of prewashed 50-75mm gravel on top.



Source: EPA (SA) 1999 'Stormwater Pollution Prevention Code of Practice for the Building and Construction Industry.

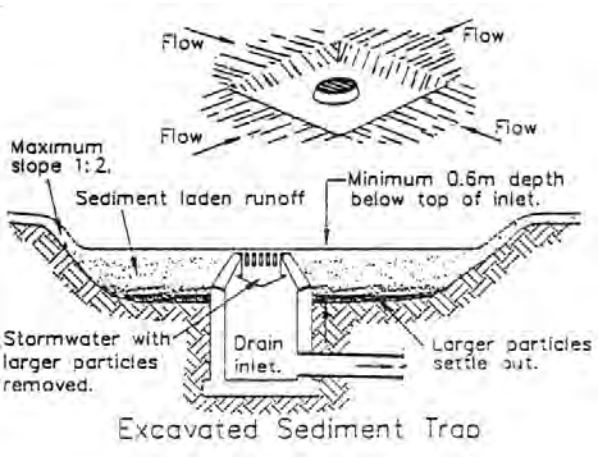
Sediment Fence drop inlet sediment trap:

Sediment fence staked around the drain to trap sediment. Note: It is important to partially bury the fabric so that water and sediment can not just flow underneath. The more space between the fence and the drain, the more chance of sediment settling and the greater the capacity of the trap.



Geotextile Filter Fabric Drop Inlet Sediment Trap

Excavated sediment trap: This is a detention basin technique for on-site drains. The basin depth needs to be at least 0.6m to ensure that water is held in place and sediment can settle out.



Source: Department of Conservation and Land Management (1995) 'Preparing an Erosion and Sediment Control Plan'.

Maintenance of the controls:

All sediment collection devices need regular maintenance to stay effective. Remove the built up sediment and check for holes or other breaks in the controls. Repair and replace them. Built up material can be re-stockpiled, used on site or collected by an Earth Moving Company.

Remember:

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Penalties for polluting the stormwater system range from $750 on the spot fines to $1 million and seven years in gaol. Both companies and individuals can be fined.

Council Officers and the EPA enforce the environmental legislation and do routine inspections of building sites. They can issue notices to make companies clean up sites, change the way they are managing the sites and if necessary, cease work. They will attempt to work with you but penalties will be issued if a satisfactory environmental outcome is not achieved.

List of fact sheets available from Council:

1. Diversion of Upslope Water
2. Dust Control
3. Early installation of Roof Drainage
4. Excavation Pump Out
5. Protected Concrete, Brick and Tile Cutting
6. Protected Concrete Delivery
7. Protected Service Trenches
8. Protected Stockpiles
9. Protected Wash Areas
10. Protected Waste Management and Chemical Storage
11. Protecting Vegetation
12. Protection of Gutter and Street Stormwater Drains
13. **Protection of Site Stormwater Pits**
14. Sediment Controls
15. Soil and Water Management Plans
16. Stabilised Site Access

For further information on preventing pollution from building and construction sites contact your local council:

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THE DRAIN IS JUST FOR RAIN

Southern Sydney Regional Organisation of Councils

Sediment Controls

'Do it right on site' is a project to help the construction industry protect the environment and achieve the many benefits that come from doing so.

Sediment Control

What is it?

These are a range of products installed across drainage flows to filter sediment out of water and enable its deposition by slowing down water flow. They include sediment fences, straw bales, grass/ vegetation strips and sediment traps/basins. Other controls may be available and advice should be sought from suppliers of Sediment Control Equipment.

Why is it important?

Sediment on building sites causes problems not only for the environment but also for builders. A dirty site causes difficulties in wet weather, increases costs from having to replace stockpiles that are washed away, increases clean up costs, penalties and potential damage to your company's reputation if fined for polluting.

The environmental impact of sediment such as mud and dirt is significant. They smother animals and plants that live on the bottom of creek beds. They settle and make the creeks shallower. Many native plants and animals can not survive this and die. Even though mud and dirt are natural they are still serious pollutants that must be prevented from entering our waterways.

Fact Sheet 14

What do I need to do?

Before building commences:

Prepare a soil and water management plan, also known as a sediment control plan. This will be required by Council prior to issuing a construction certificate (either at DA stage or as a condition of consent) and should outline the methods you will use to prevent pollution of the stormwater system throughout the life of the development. There may be different controls needed as the site develops due to changes in drainage patterns and vegetation. This should be thought through and shown on your plans. Council can provide you with sample plans, however it is important that you develop a plan specifically for your site.

Remember the more erosion you can prevent the less sediment will need to be captured! The easiest way to prevent erosion is to leave shrubs and grass in place. This has the dual effect of holding the soil and dirt together as well as filtering and slowing down water flows enabling sediment to settle out.

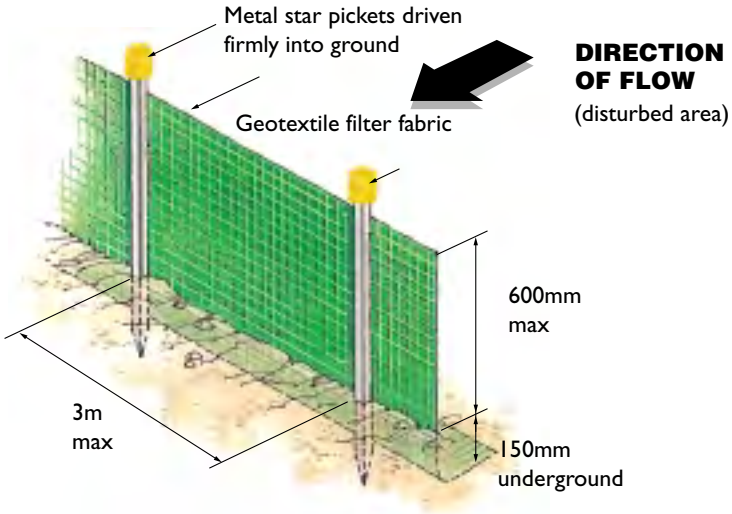
If vegetation needs to be removed try not to do it until immediately before works commence or stage the works to limit the amount of the site that is disturbed at any given time. As you move into a new area, revegetate the finished area. Another way to minimise erosion is to ensure that you only have small amounts of sand, soil and other stockpiles on site at any time. Ensure stockpiles are stored in ways to reduce erosion - see Fact Sheet 8 on *Protected Stockpiles*.

Installing the controls:

The sediment controls need to be in place prior to the commencement of building works. Remember that the sediment controls will need to be altered as construction occurs and the sites drainage patterns change.

Sediment Fence

A sediment or silt fence is the most widely used strategy. It is constructed from heavy duty geofabric. Although a sediment fence looks like shade cloth it is very different and is not interchangeable. A sediment fence is specifically designed to allow the free passage of water and trap sediment



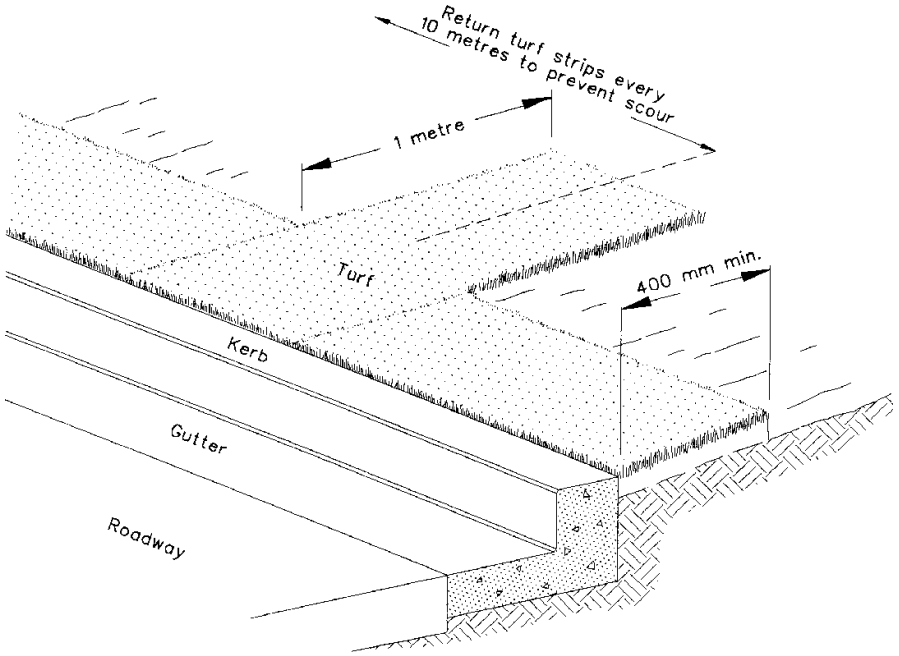
Sediment Fence (continued)

Construction Notes:

1. construct the sediment fence as close as possible to parallel to the contours of the site
2. drive 1.5m long star picket into ground, 3m apart
3. dig a 150mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched
4. backfill trench over the base of fabric (where the sediment barrier has to be located on hard pavement that cannot be trenched, a gravity system held firm by its weight eg: gravel sausage can be used.)
5. fix self supporting geotextile to upslope side of posts with wire ties or as recommended by geotextile manufacturer
6. join sections of fabric at a support post with a 150mm overlap

Grass Strip Filters

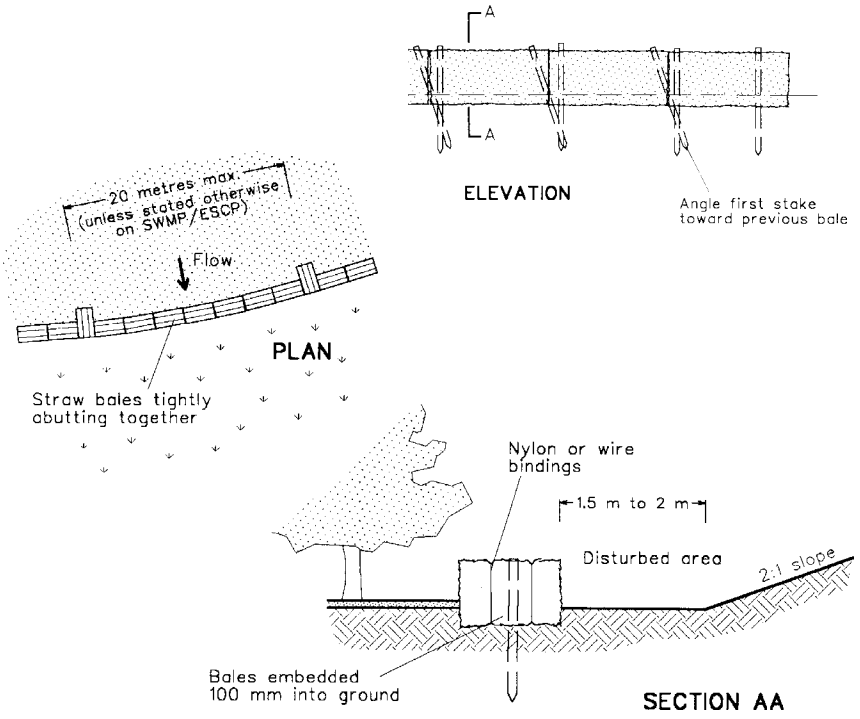
These are strips of undisturbed vegetation or grass planted down slope from earthworks. They provide a simple method of trapping coarse sediment. The flatter and wider the strips are, the more effective they become. They are only suitable on low grades. A 400mm wide grass strip between the kerb and the footpath can be a good last resort sediment control, filtering the water before it enters the stormwater system.



Straw Bale Filters

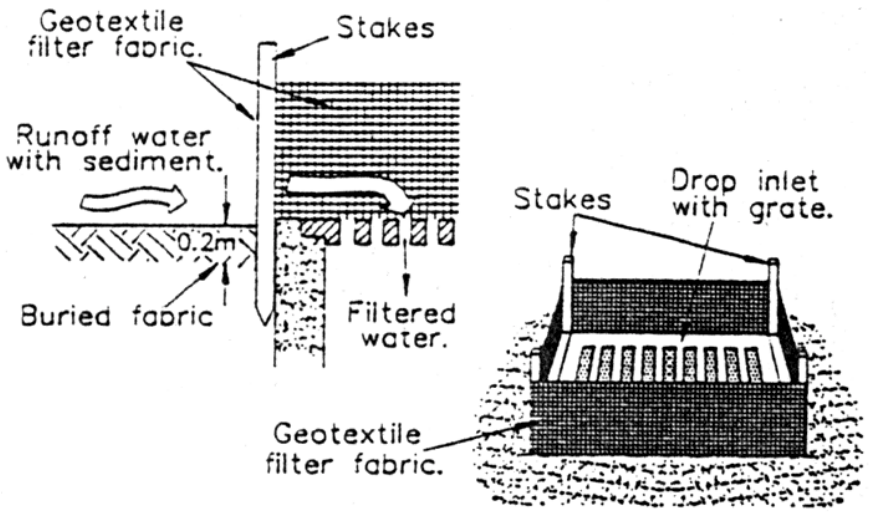
These are straw bales tightly abutted together and partially buried into the ground. They are only suitable for low flows. Filter fabric can be placed in front of them adding to the sediment stoppage. It is recommended that at least 4 bales are used as during a storm any less result in the water simply hitting the bales and flowing around them. This defeats the purpose of using them, which is to slow the water and have it filter through the bales with the sediment settling out.

Straw bales are usually used incorrectly. Seek Council guidance if unsure.

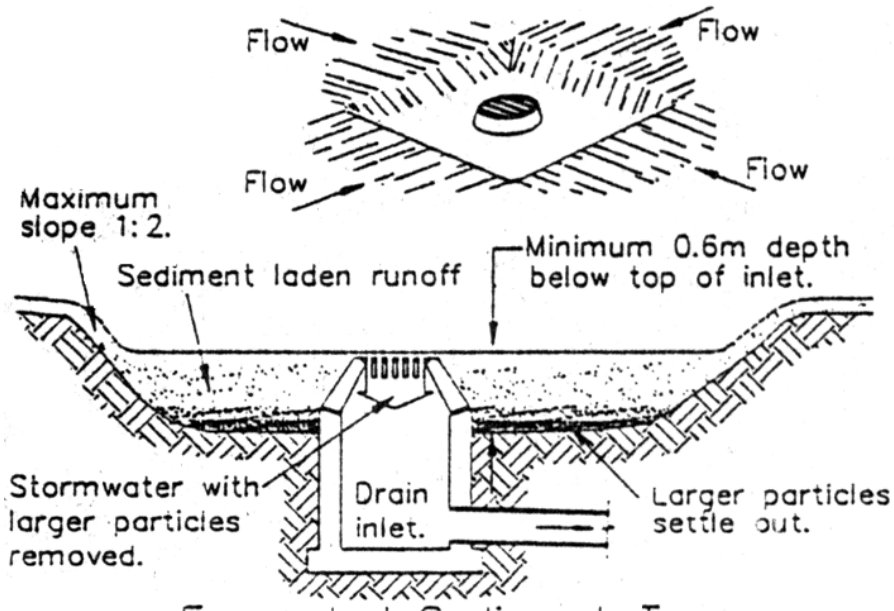


Sediment Traps / Ponds

These are basins designed to capture a concentrated sediment laden flow and store it under still conditions enabling the silt to deposit at the bottom of the trap. The effectiveness of the traps to remove fine particles may be improved by the placement of filter fabric along the uphill face of the embankment.



Geotextile Filter Fabric Drop Inlet Sediment Trap.



Excavated Sediment Trap

Maintenance of the sediment controls:

Sediment controls will naturally fill up with sediment and need to be maintained to stay effective. This involves removing the built up sediment as well as ensuring that they are still in good working condition.

Often sediment controls will be moved during works and they should be checked daily to ensure they have been put back in place properly.

Straw bales deteriorate and can end up polluting waterways. Their average life is 3 months and should be inspected regularly. Enclosing bales in sediment fence reduces this risk. At the end of their life they can be used as mulch on gardens. Sediment fences should also be checked regularly for holes.

Some Councils do not allow straw bales to be used, so check with them when planning your controls.

Soil and water controls should be kept in place until works are completed. If landscaping is not completed prior to handover ensure that the new owners are aware of their responsibility to prevent pollution from entering the stormwater system.

DO IT RIGHT ON SITE
ENVIRONMENTAL INFORMATION FOR BUILDERS

Suppliers of Sediment Control Equipment

There are a large number of companies that supply sediment control equipment listed in Outdoor Design Source and the Yellow Pages. While we do not necessarily endorse any particular company or product we thought it useful to list some company details as a starting point for you:

Total Erosion and Pollution ph: 02 9524 0155

GSE Lining Technology ph: 02 9821 2977

Hardware House

Maccaferri Pty Ltd ph: 02 9648 3800

Mulch Mat Products ph: 02 9905 5344

Naturelink Environmental ph: 02 4578 4588

Polyfabrics Australia Pty Ltd ph: 02 9829 5599

Spraygrass Landscapes ph: 02 9627 4352

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