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Australia

# CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

July 2019
J161921

## Hutchinson Builders
## Mainsbridge School

C123836 : AC

## Document Control

| Document Quality Management Details. | | |
|---|---|---|
| **Report Name:** | Construction Environmental Management Plan | |
| **Site Details:** | Mainsbridge School, 95 Lawrence Hargrave Road, Warwick Farm NSW 2170 | |
| **Project Number:** | J161921 | |
| **Client Name:** | Hutchinson Builders | |
| **Client Number:** | C123836 | |
| **Signatures:** | Prepared By:<br>Alex Chaplin<br>**Consultant – Environment NSW** | Authorised By:<br>Matthew Barberson<br>**Team Manager – Environment NSW** |

**Issue Status**

| Version No. | Date | Creator | Reviewer |
|---|---|---|---|
| 1 | 24/05/2019 | Alex Chaplin | Matthew Barberson |
| 2 | 27/05/2018 | Alex Chaplin | Matthew Barberson |
| **3** | 02/07/2019 | Alex Chaplin | Matthew Barberson |
| **4** | **04/07/2019** | **Alex Chaplin** | Matthew Barberson |

**Document Circulation**

| No of Copies | Type | Customer Name | Position & Company |
|---|---|---|---|
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# Construction Environmental Management Plan

## Hutchinson Builders

### Mainsbridge School

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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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# Construction Environmental Management Plan

## Hutchinson Builders

### Mainsbridge 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;
- 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

### Mainsbridge School

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# 2 INTRODUCTION AND BACKGROUND

This CEMP meets the requirements of DA condition B.18, relating specifically to the preparation of a CEMP.

The Mainsbridge School is to be relocated to the northern portion of the Warwick Farm Public School, Lawrence Hargrave Road, Warwick Farm NSW 2170. Refer to Figure 1 and 2 of the Figures section of this report for site location, site boundaries and proposed construction area. Results of environmental assessments conducted by Environmental Investigation Services (EIS) in November 2017 identified lead and asbestos (bonded and friable) within the proposed development zone report ref: *E29918KPrpt2_rev1 EIS 2017.* Additional assessment of surface soils within the investigation area identified delineated the presence of lead in surface soils ref: *E29918kPrpt3 EIS 2017*. A remediation action plan (RAP) has been developed for the site the site, prepared by EIS ref: *E29918KPropt-RAP Rev1 EIS 2018*. A RAP Addendum has been completed by EIS confirming remediation and validation requirements ref: *E29918KPrpt – RAPADD Warwick Farm*.

An asbestos management plan (AMP)for the site identifies the appropriate site management and personal protective equipment required for remediation of asbestos containing materials (ACM) ref: *PS113561_WarwickFarmPS_AMP_RevB*. 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 understand that excavation and off-site disposal of contaminated fill and cut-and-fill activities will occur on the site. The proposed school development includes construction of the following:

- Learning spaces;
- Offices;
- A pool and pool store building;
- Car park;
- Landscaping; and
- A sports field to be shared between Mainsbridge School and Warwick Farm Public School.

It is to be noted that no Review of Environmental Factors (REF) was supplied to Greencap at the time of this report having been created.

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*; and
- Department of Infrastructure, Planning and Natural Resources (2004), *Guideline for the Preparation of Environmental Management Plans*.

## 2.1 Purpose of this CEMP

The purpose of this CEMP is to provide a structured approach to the management of environmental issues during construction 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 DA condition B.18, relating specifically to the preparation of a CEMP. The Development Approval Conditions (DAC) requirements and where they are met in the CEMP are shown in the table below:

**Table 1: Site Details**

| DAC Item | Requirement | Reference |
|---|---|---|
| **B.8** | Unexpected Contamination Procedure | Appendix O |
| **B.12** | Community Communication Strategy | Section 5 |
| **B.17 - 18** | A CEMP shall be prepared prior to commencement of construction which addresses the following as a minimum: | This Document |
| **B.20** | Construction Traffic and Pedestrian Sub-Plan | Appendix G |
| **B.21** | Construction Noise and Vibration Management Sub-Plan | Appendix K |
| **B.22** | Construction Waste Management Sub-plan | Appendix F |
| **B.23** | Construction Soil and Water Management Plan | Appendix E |
| **B.24** | Biodiversity Management Sub-Plan | Appendix M |
| **B.25** | Flood Emergency Response Sub-Plan | Appendix N |
| **The CEMP shall also:** | | |
| **i)** | Comply with the DAC, 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 Warwick Farm Public School, located on Lawrence Hargrave Road, Warwick Farm NSW 2170. Specific details are provided in **Table 2** and site boundaries provided in F**igure 1** in Figures section of this report.

| Table 2: Site Location and Details | | |
|---|---|---|
| **Item** | **Details** | |
| **Site Address** | Lawrence Hargrave Road, Warwick Farm NSW 2170 | |
| **Site Owners** | Department of Education & Communities | |
| **Lot and Deposited Plan (DP)** | **Lot** | **DP** |
| | 22 | 715287 |
| **Lot Size** | 3.047ha | |
| **Zoning** | R2 – Low Density Residential | |
| **Local Authority** | City of Liverpool | |

## 2.3 Project Description

The project consists of remediation of contaminated land and construction of a new school infrastructure. The project comprises the following key elements:

- Excavation and validation of areas identified with lead and bonded asbestos contamination;
- Excavation and validation of areas identified with friable asbestos contamination;
- On-site treatment and validation of areas identified with bonded asbestos contamination;
- Cut and fill activities to level the site;
- Construction of new site buildings for learning spaces and offices;
- Construction of car parking locations;
- Development of soft-landscaping areas including sensory gardens and fenced play areas;
- Demolition of existing toilet blocks and construction of a new toilet block; and
- Development of a sports playing field.

The project will provide a new school campus for children with special needs. The existing buildings for Warwick Farm Public School will remain on site, excluding the toilet block to be demolished. A new toilet block is to be constructed adjacent the remaining structures. Following excavation and site-specific remediation activities, land scaping for the new sports field 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 2.1 of this CEMP are detailed in **Table 3.**

| Table 3: Project Staging for Key Activities | |
|---|---|
| **Stage of Works** | **Activities** |
| **Site establishment and enabling works (Stage 1A)** | • Establish the site compound (erect fencing, tree protection zones, site offices, amenities and plant/material storage areas);<br>• Establish temporary facilities as required (e.g. temporary pedestrian access to station, temporary toilets, etc.);<br>• Remove vegetation to allow for earth works;<br>• Installation of temporary roads for site vehicles; and |

| Table 3: Project Staging for Key Activities | |
|---|---|
| **Stage of Works** | **Activities** |
| | • Services relocation. |
| **Demolition and construction of toilet blocks (Stage 1B and 1C)** | • Construction of new toilet amenities adjacent existing school buildings; and<br>• Demolition of existing toilet block and removal of waste from site. |
| **Remediation of contamination (Stage 1D)** | • Excavation of materials to be removed from site;<br>• Validation of excavation;<br>• On-site treatment of bonded asbestos and;<br>• Validation of treated areas; and<br>• Validation of remaining site soils. |
| **Cut and fill (Stage 1D)** | • Cut and fill of site to design level following soil removal for remediation; and<br>• Bulk earthworks and landscaping for the sports field areas. |
| **Construction of buildings (Stage 2)** | • Detailed excavation following base compaction;<br>• Deep and detailed excavation for footing and edge beams;<br>• Installation of slab; and<br>• Construction of buildings. |
| **Finalisation** | • Electrical and power supply upgrade works; and<br>• 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 (i.e. 07:00 to 18:00 Monday to Friday and 08:00 to 13:00 Saturdays). The Hutchinson Builders Environmental Management Plan ref: *Hutchinson Builders (2019) Environmental Management Plan: Mainsbridge Public School*, indicates the proposed working times will be 07:00 to 17:00 Monday to Friday and 08:00 to 2:00pm on 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 Department of Education.

### 2.5 Compound Facilities

Temporary compound facilities are required to support construction of the project. The prime site compound will be established to the immediate south of the vehicle entrance gate off William Crescent.

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

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

### 2.6 Outdoor Lighting

Outdoor lighting is be compliant with the Australian Standard (AS4282 1997) as presented in Table **1**.

Table 4: AS4282-197 Lighting Criteria

| Time Period | Commercial\residential areas | Residential – Light Surrounds* | Residential – Dark Surrounds# |
|---|---|---|---|
| Pre-curfew (7am-6pm) | 25 lux | 10 lux | 10 lux |
| Post-curfew (6pm-7am) | 4 lux | 2 lux | 1 lux |

* Where the affected property abuts roads that are lit to Category V5 or higher in accordance with AS/NZS 1158.1.1 (Lighting for roads and public spaces – Vehicular traffic (Category V) lighting – Performance and design requirements).

# Where the affected property abuts roads that are lit to Category B1 or lower in accordance with AS 1158.1.1, or where there is no lighting.

The applicable criterion is Residential – Light surrounds as there is street lighting on Williamson Crescent.

The follow controls will be implemented to ensure that the site is compliant with the standard:

- All external fixed lights are to be fitted so that they do not shine above the horizontal;
- Light shields to direct light where required could be installed on all permanent lighting fixtures such as site sheds and site entrance;
- Lighting is to be focused towards where the light is actually required and be as down facing or facing away from residential buildings as much as possible;
- All lighting systems should be designed to minimise their impacts at the sites boundary;
- Lighting is to be placed only where it is required and not where it is unnecessary;
- Any temporary\mobile lighting that may be required from time to time must also follow the principles outlined above; and
- The choice of luminaire should match the intended lighting requirements and the environment it is to be located in.

## 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.

Hutchinson Builders 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 5**. This register will be reviewed by the Hutchinson Builders 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 5: 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 M) | N/A |

| Table 5: Regulatory Compliance Requirements | | | | | |
|---|---|---|---|---|---|
| **Regulatory Instrument** | **Licence/Permit/ Approval/Guideline/ Plan** | **Responsible Regulatory Body** | **Responsibility for Ongoing Compliance Monitoring** | **Reporting Frequency/ Milestones** | **Report Content** |
| *Native Vegetation Conservation Act 1997* | N/A | Office of Environment and Heritage | QS&E Manager | N/A | N/A |
| *Fisheries Management Act 1994* | N/A | State Fisheries | QS&E Manager | N/A | N/A |
| *Soil Conservation Act 1938* | N/A | Department of Water and Energy | QS&E Manager | N/A | N/A |
| *Rivers and Foreshores Improvement Act 1948* | N/A | Department of Water and Energy | QS&E Manager | N/A | N/A |
| *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* | Hutchinson Builders is not obligated to hold an Environmental Protection | Environment Protection Authority | QS&E Manager | All materials to be disposed off-site are to be removed under | As per the NSW EPA (2014) *Waste Classification Guidelines* |

| Table 5: Regulatory Compliance Requirements | | | | | |
|---|---|---|---|---|---|
| **Regulatory Instrument** | **Licence/Permit/ Approval/Guideline/ Plan** | **Responsible Regulatory Body** | **Responsibility for Ongoing Compliance Monitoring** | **Reporting Frequency/ Milestones** | **Report Content** |
| *Operations (Waste) Regulation 2008* | Licence for the site or site activities but is responsible for the management and disposal of waste on the site | | | appropriate waste classification documentation to a suitably licenced facility | |
| *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* |
| *Waste Avoidance and Resource Recovery Act 2001* | N/A | Environment Protection Authority | QS&E Manager | N/A | N/A |
| *Environmentally Hazardous Chemicals Act 1985* | N/A | Environment Protection Authority | QS&E Manager | N/A | N/A |
| *Roads Act 1993* | N/A | Roads and Transport Authority | QS&E Manager | N/A | N/A |
| *Work Health and Safety Act 2011* | Preparation and adherence to project-specific asbestos management plan and Code of Practice: How to Manage and Control | WorkCover NSW SafeWork | QS&E Manager | N/A | As per Code of Practice: How to Manage and Control Asbestos in the Workplace |

| Table 5: Regulatory Compliance Requirements | | | | | |
|---|---|---|---|---|---|
| **Regulatory Instrument** | **Licence/Permit/ Approval/Guideline/ Plan** | **Responsible Regulatory Body** | **Responsibility for Ongoing Compliance Monitoring** | **Reporting Frequency/ Milestones** | **Report Content** |
| | Asbestos in the Workplace | | | | |
| *Environment Protection and Biodiversity Conservation Act 1999* | EPBC Act Protected Matters Report indicates presence of 20 threatened ecological communities, 25 threatened flora species, 32 threatened fauna species and 6 migratory species within the 5km of the site. Managed under the Biodiversity Management Plan (Appendix M) | Department of the Environment, Water, Heritage and the Arts | QS&E Manager | As provided in the Biodiversity Management Plan (Appendix M) | N/A |
| *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 (DP&I, 2012);
- Interim Construction Noise Guideline (DECCW, 2009);
- 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); and
- A/NZ Guidelines for Fresh and Marine Water Quality (ANZECC/ARMCANZ 2000).

### 3.4 Conditions of the Planning Approval

NSW Department of Planning and Environment is the consent authority for this project and the Conditions of Approval listed in the *Development Consent – SSD 8792* will be adhered to.

These conditions are listed in the *Part A Administrative Conditions* document which forms Schedule 2 of the Development Consent. Resolution of the applicable sections presented in the CEMP are presented in Appendix Q.

This CEMP has been prepared to comply with aspects of the Conditions of Approval relevant to management of environmental issues related to the Project. 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 boars 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 6: Stop Work Contact Details | | |
|---|---|---|
| **Name** | **Position** | **Contact** |
| John Koumoukelis | Team Leader | Mob: 0416 616 464 |
| Phil Ho | Project Manager | Mob: 0427 858 900 |

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 7: Key Project Personnel to Implement CEMP | | |
|---|---|---|
| **Name** | **Position** | **Contact** |
| John Koumoukelis | Team Leader | Mob: 0416 616 464 |
| Phil Ho | Project Manager | Mob: 0427 858 900 |
| Melissa Stojanociv (GHD) | Project Manager | 0405 210 434 |

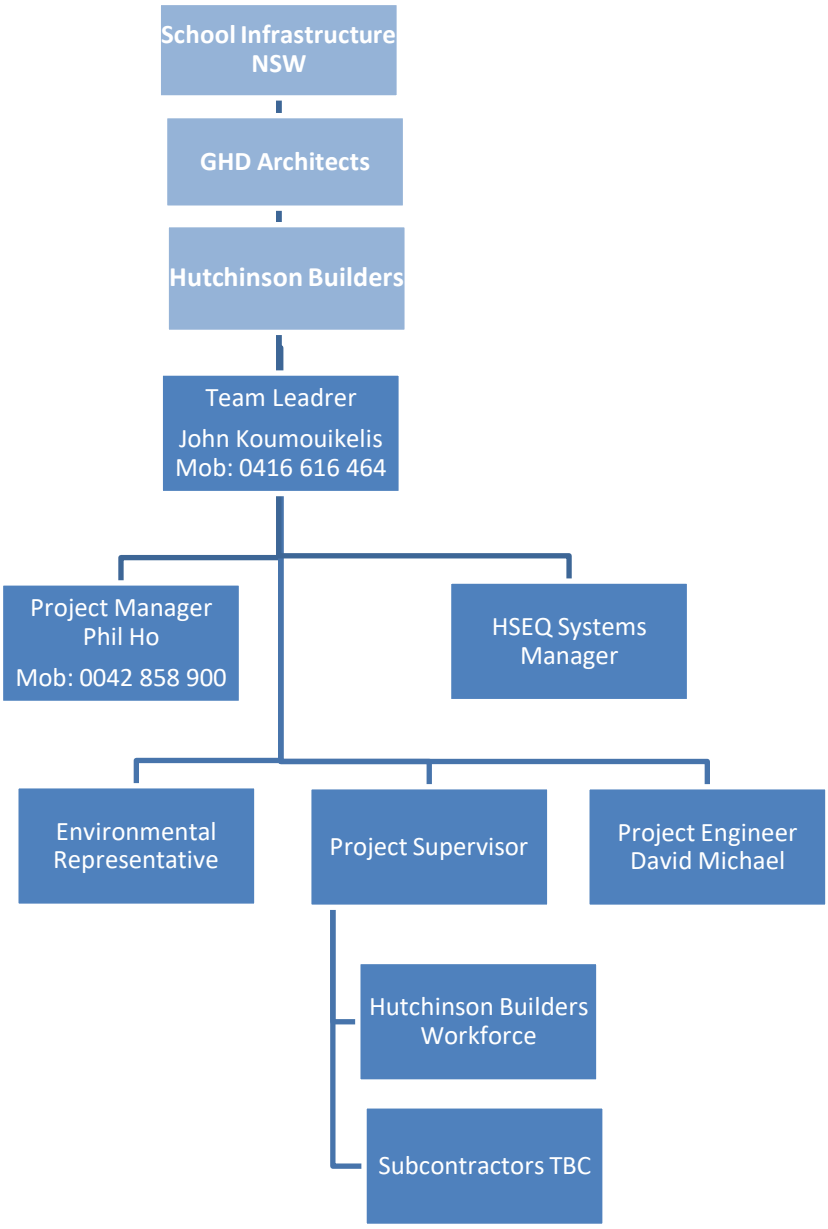


**Figure 1: Organisational Structure of the Project**

### 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 4.2.7.

#### 4.2.1 Hutchinson Builders Construction Manager/Team Leader

**Table 8: 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, the REF, project specific DS-100 Specifications 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 9: 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 REF, REF addendum, 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 Hutchinson Builders Project Supervisor

| Table 10: 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 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 11: 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 EWMS (Appendix C). | As Requested |
| Attend pre-start and toolbox meetings. | At Random |

| Table 11: Environmental Representative Environmental Responsibilities | |
|---|---|
| **Environmental Responsibilities** | **Frequency** |
| To review and participate in environmental incident investigation and nominated corrective measures. | On Occurrence |
| Provide staff with training and inductions on environmental issues. | As Required |
| Ensuring compliance with the Planning Approval Documents. | Continually |
| Preparing and overseeing 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 12: 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 |

### 4.2.6 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. | Daily |

| Table 13: Hutchinson Builders Environmental Responsibilities | |
|---|---|
| **Environmental Responsibilities** | **Frequency** |
| 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 |

### 4.2.7 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. | Daily |
| 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 |
| 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 |
| Daily Pre Start meeting (Hazard Assessment Checklist) | Daily | All | Hutchinson Builders Project Supervisor |
| 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

All stakeholder consultation required for the project including complaints handling will be undertaken by the School Infrastructure NSW (SINSW).

Hutchinson Builders will continuously liaise with GHD and SINSW 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 at the site[1]. Please refer to the strategy for further details regarding the community strategy.

The following communication channels will be used prior and during the construction period to provide information about the proposed works and to provide advance notice of construction activity. The key forms of communication for enquiries and complains are provided in information booths, sessions, and a 1300 number published on all communication materials and the SINSW email address.

**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 |
|---|---|---|---|
| 1300 Community Information Line | Call 1300 482 651 to contact SINSW for enquiries.<br>All enquiries are referred to the appropriate SINSW Manager. | The number is available during the life of the project and for 12 months after construction has been completed. | SINSW |
| Advertising | Advertising in local newspapers is undertaken at least seven days prior to significant construction activities. | At project milestones. | SINSW |
| Community Contact Cards | Project team/contractors (including Hutchinson builders) are to hand out cards to stakeholder and community | Available during the life of the project and for 12 months after construction has been completed. | SINSW, GHD and Hutchinson Builders |

[1] SINW (2019) *Community Communication Strategy – Mainsbridge School for Specific Purposes*. Available online: https://www.schoolinfrastructure.nsw.gov.au/content/dam/infrastructure/projects/m/mainsbridge-school/documents/CCS_Mainsbridge_SSP_April_2019.pdf. Accessed 21/05/2019.

| Table 16: Community Consultation Channels | | | |
|---|---|---|---|
| **Channel** | **Purpose** | **Frequency** | **Responsibility** |
| | members enquiring about the project. Cards are also located at the school administration office. | | |
| 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. | Hutchinson Builders |
| 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. | SINS |
| 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 |
| 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, GHD and Hutchinson Builders |

### 5.6 Complaints Handling

The SINSW community engagement plan has comprehensive management strategies for complaint management and handling. Complaints during construction include issues regarding:

- Safety;
- Dust;
- Noise;
- Traffic congestion;
- Loss of parking;
- Contamination;
- Hours of work;
- Property damage;
- Property access;

- Service disruption;
- Conduct of behaviour of construction workers; and
- Unplanned or uncommunicated disruption to the school.

Following receiving either a phone call, email or face-to-face complaint the complaint is to be logged notified to SINSW and logged into the management software and resolved by SINSW within 24-48 hours.

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

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;
- 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 personnel involved with the project (including all sub-contractors engaged) 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 are aware of:

- Their individual 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; and
- 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:
  - Erosion and sediment controls;
  - Waste management;
  - Vegetation damage;
  - Heritage site damage;
  - Creek pollution;
  - Fauna management
- EPA and City of Liverpool 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:
  - Presence of threatened flora species;
  - Aboriginal heritage areas;
  - 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;
- Sediment control measures;
- Noise level management;
- Surface and groundwater management;
- Resource and energy usage;
- Chemicals and fuel use;
- Procurement of materials;
- Placement and use of onsite amenities;
- Vegetation removal;
- Construction traffic, plant movement and road occupancy; and
- Heritage site damage

### 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 aquatic ecosystems;
- Non-approved harm to aboriginal and non-aboriginal heritage;
- Non-approved harm to native vegetation;
- Weed spread;
- Harm of native fauna;
- 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);
- Soil and Water Contamination Plan (Appendix E);
- Construction Waste Management Plan (Appendix F);
- Traffic and Pedestrian Management Plan (Appendix G);
- Weed Management Plan (Appendix H);
- Erosion and Sediment Control Management Plan (Appendix I);
- Environmental Incident Response Plan (Appendix J);

- Noise and Vibration Management Plan Appendix K);
- Tree and Fauna Management Plan Appendix L);
- Biodiversity Management Plan (Appendix M);
- Bush Fire and Flood Emergency Response Plan (Appendix N);
- Unexpected Finds Protocol - Contamination (Appendix O); and
- Unexpected Finds Protocol - Heritage (Appendix P).

# 8 ENVIRONMETNAL MONITORING AND REVIEW

## 8.1 Site Inspection

The Site Inspection Checklist (Appendix B) will be used to record the results of planned inspections on a regular basis, 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 the nominated Environmental Representative every three months or as required (eg 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;
- Site inductions;
- Weekly environmental inspections;
- Environmental audits;
- Non-conformance and evidence of corrective actions;
- Complaints;
- 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 three 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 Reporting

Environmental performance will be documented monthly and transmitted to the Hutchinson Builders Systems Manager utilising an Environmental Performance Report.

This report will capture:

- Any environmental incidents within the period;
- Any complaints;
- Comments on performance and effectiveness of waste management measures and;
- Environmental non-compliances and proposed corrective actions as well as effectiveness and adequacy of this CEMP.

# 9 ENVIRONMENTAL INCIDENT RESPONSE

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;
- Pollution of a waterway; and
- Damage to a Heritage site.

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 J of this CEMP.

## 9.1 External Emergency Contacts

**Table 17: External Emergency Contacts**

| Issue | Contact | Number |
|---|---|---|
| Life threatening emergencies<br>Spills involving Mercury (call HAZMAT) | Fire Brigade (including HAZMAT), Ambulance or Police | 000 |
| Complaints | School Infrastructure NSW | 1300 482 651 |
| Pollution incidents | EPA | 131 555 or 02 9995 5000 (24 hours) |
| | Ministry of Health | 9391 9000 |
| | SafeWork NSW | 13 10 50 |
| | City of Liverpool | 1300 362 170 |
| Electricity Supplier (NSW) | TransGrid<br>Endeavour Energy | 1800 027 253<br>131 003 |

| Table 17: External Emergency Contacts | | |
|---|---|---|
| **Issue** | **Contact** | **Number** |
| Loss of supply, fallen wires, or other electrical emergency | | |
| 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 |

## 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

GREENCAP
Going Further in Managing Risk

# Construction Environmental Management Plan

## Hutchinson Builders

### Mainsbridge School

### Figures

# Construction Environmental Management Plan

## Hutchinson Builders

### Mainsbridge School

### Appendix A: Site Establishment

# 1. PURPOSE

To address the requirements of the Development Consent in reference to Site Establishment for construction of the Mainsbridge School at the Warwick Farm Public School.

# 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.
- Removal of vegetation.
- 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 Warwick Farm Public School;
- Structures maintained throughout the proposal foot print; and
- Road ways/access ways within the Warwick Farm Public School 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:

- Vegetation to be removed for the works to be clearly marked.
- Vegetation to be retained for the works, including Hollow Bearing Trees to be clearly marked. Establish No-Go zones around vegetation areas to be retained.

- All Heritage Areas to be defined as No-Go zones.

### 3.1.3 Boundary Fencing

- Temporary wood board fencing will be installed on the site boundary along Williamson Crescent and the Warwick Farm Public School on the southern boundary;
- Mesh will be added to the existing fencing on the northern boundary adjacent the childcare centre. Mesh will be installed on both sides of the fence during the environmental remediation, cuts in the mesh will alternate ensuring that all sections of the fence have on layer of mesh;
- Additional temporary fencing will be erected Monday-Friday during the environmental remediation. The fencing is not required following validation of the site; and
- Temporary fencing with a single layer of mesh will be erected on the eastern boundary of the site, adjacent the Brickmakers Creek.

### 3.1.4 Construction Compound

The temporary construction compound, located to the north of the Warwick Farm Public School, 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.

### 3.1.5 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.

### 3.1.6 Installing Erosion and Sediment Controls

The erosion and sediment controls are to be designed, installed and maintained in accordance with Landcom's *Managing Urban Stormwater: Soils and Construction* (generally referred to as the "Blue Book") requirements may include the use of geofabrics, sediment floatation booms, sediment fences, and bunding. Refer to Appendix I of the CEMP (this document) for the Erosion and Sediment Management Plan.

### 3.1.7 Implementing Traffic Management

Traffic management measures will be implemented in accordance with the Traffic and Pedestrian Management Plan - Appendix G of the CEMP.

### 3.1.8 Vegetation Removal

Following establishment and delineation of the site boundary and securing the construction site, any vegetation requiring removal will be clearly identified and distinguished from the trees that are to remain. Identified vegetation is to be removed following a pre-clearance inspection by a qualified ecologist. All vegetation removal is to be completed by an experienced, qualified arborist and weed or other vegetation removal would be undertaken by an experienced, qualified bush regenerator.

### 3.1.9 Construction of Access Tracks

To be constructed in high traffic areas to provide access to the site for vehicles, plant and personnel. Access tracks are to be maintained to prevent erosion using necessary sediment control measures. All temporary access tracks are to be reinstated to natural bushland or to design on completion of works.

# Construction Environmental Management Plan

## Hutchinson Builders

### Mainsbridge School

### 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 I. | | |
| **Soils** | Erosion of exposed soils and stockpiled material.<br>Disturbed sediments mobilising to waterways.<br>Removal of topsoil will increase the potential for sediment erosion.<br>Construction of access roadway to Winmalee Creek will increase surface erosion potential.<br>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 F). | | |
| | | Sediment fencing in place for all soil stockpiles on site. | | |
| | | No stockpiled material left near or within the creek line. | | |
| | | 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.<br>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.<br>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.<br>Flooding could result in soil erosion and sedimentation at construction sites.<br>WWTP is located within a catchment area with the potential for flash flooding to occur within the creek when significant rainfall occurs. | Flooding Sediment controls installed to manage sediment and erosion issues (ER&SED Appendix I). | | |
| | | Work site stabilised after rainfall | | |

| Aspect category | Potential Impact | Mitigation Measures to be checked | Outcome | Comments |
|---|---|---|---|---|
| **Vegetation and Weeds** | Spread of noxious weeds. | Weeds removed from work areas, weed infestation areas clearly marked (Appendix H of the CEMP – Weed Management Plan) | | |
| | | 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 | | |
| **Rehabilitation** | Soil and water impacts.<br>Landscape impacts. | Stockpiles, storage and depot sites within allocated areas avoiding areas of native vegetation | | |
| **Heritage** | Damage to Heritage Sites. | Work ceased if heritage item is located (Heritage UFP – Appendix Q) | | |
| | | No work to be carried out in close proximity to known Heritage Sites | | |
| **Construction traffic and noise** | Increased traffic in residential areas.<br>Reduced safety for pedestrians and cyclists in residential areas.<br>Increased noise associated with increased traffic. | Vehicles observed on site adhering to traffic management plan (T&PMP – Appendix G) | | |
| | | Plant and equipment working to approved hours | | |
| | | Noise not causing disruption to nearby residence | | |
| | | Vehicle speed limit 10km/h | | |
| | | Pedestrian detours in place | | |

| Aspect category | Potential Impact | Mitigation Measures to be checked | Outcome | Comments |
|---|---|---|---|---|
| | | Sufficient identification / barriers for vehicle movement zones | | |
| | | Access for emergency services maintained | | |
| **Waste Generation** | Soil and water impacts.<br>Landscape impacts.<br>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
## Hutchinson Builders

### Mainsbridge School

### 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 construction of the Mainsbridge School at the Warwick Farm Public School.

# 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 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 Warwick Farm Public 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 |
| Phil Ho | Project Manager | Mob: 0427 858 900 |

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 |
| Phil Ho | Project Manager | Mob: 0427 858 900 |
| Melissa Stojanovic (GHD) | Project Manager | Mob: 0405 210 434 |

| 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 | School Infrastructure NSW | 1300 482 651 |
| Pollution incidents | EPA | 131 555 or 02 9995 5000 (24 hours) |
| | Ministry of Health | (02) 9391 9000 |
| | SafeWork NSW | 13 10 50 |
| | City of Liverpool | 1300 362 170 |
| Electricity Supplier (NSW)<br>Loss of supply, fallen wires, or other electrical emergency | TransGrid<br>Endeavour Energy | 1800 027 253<br>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<br>Compaction<br>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<br>Project Supervisor |
| | | | 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. | | |
| | | | Remove temporary works after they are no longer required to ensure area is left as it was found. | | |
| **Contamination** | Soil contamination caused by disturbance of asbestos caontaining materials (ACM), oil, chemicals, grease or fuel spills or leaks from machinery.<br>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 F). | | |
| | | | 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, | | |

| 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** |
| | | | with warning signs and tape. The material is to wet the area down with a fine mist and secure with geofabric. AMP ref: *WSP Pty Ltd Asbestos Management Plan Warwick Farm Public School March 2019.* | | |
| **Surface Water Quality** | Trenching of watercourses could result in soil erosion and sedimentation at construction sites.<br>Increased suspended sediment loads downstream of construction site<br>Pollution of waterways by fuel or chemicals and wastewater<br>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 I 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 |
| | | | No refuelling, fuel decanting or vehicle maintenance work would take place within proximity of waterways | | |
| | | | 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 |
| | | | Should groundwater be encountered during construction activities, the management measures as detailed in Appendix I of the EMP 'Erosion and | | |

| 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** |
| | | | 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. | | |
| | | | 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<br>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 J of the CEMP. | 10 | Project Manager / Project Supervisor |
| | | | 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. | | |
| | | | Response to rainfall and potential flooding events are specified in Appendix N of the CEMP 'Bush Fire and Flood Emergency Response Plan' | | |
| | | | 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 |

| 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** |
| **Vegetation Impacts** | Non approved impacts to native flora<br>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 where specified in Appendix M 'Biodiversity Management Plan' | | Project Manager<br>Project Supervisor<br>Environmental Representative |
| | | | Regular inspections should be undertaken to clearly mark all retained vegetation/fauna habitat. | | |
| **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<br>Environmental Representative<br>Project Supervisor |
| | | | Timber felled for clearing should be retained on the ground as cover for terrestrial fauna where possible. | | |
| **Clearing of Native vegetation** | Non approved Impacts to native vegetation | 9 | 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. | 3 | Project Manager |
| | | | Where applicable, logs and hollows to be relocated to limit habitat destruction. | | |

| 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** |
| **Noxious weed management** | Spread of Noxious Weeds | 16 | Establish a noxious weed management protocol that introduces an identification card for contractors (Refer to Appendix H of the CEMP – Weed Management Plan). | 8 | Environmental Representative |
| | | | Weed removal is to be carried out prior to works commencing. | | Project Manager<br>Project Supervisor |
| | | | 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. | | |
| **Management of threatened plant species** | Impacts to threatened plant species | 10 | Any threatened plant species are to be flagged on the site, then accurately surveyed and marked on plans to inform the detailed design. | 5 | Project Manager<br>Project Supervisor |
| | | | 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. | | |

| 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<br>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. | | |
| | | | Vehicle use on unsealed surfaces would be avoided where possible. | | |
| **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:<br>7am – 6pm Monday to Friday and 8am – 1pm Saturday.<br>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 F of the CEMP | 8 | Environmental Representative |
| | | | Waste management will occur according to the hierarchy of avoidance, reuse, recycle, and finally disposal. | | Project Manager<br>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 F '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.<br>No burning of vegetation or other materials will be permitted on site.<br>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<br>Loss of public and private property<br>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: Warwick Farm Public School |
| The following persons acknowledge they attended an induction for the Works to be undertaken at the above location. | | |
| Name | Signature | Date |
| | | |
| | | |
| | | |
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| I acknowledge that I have completed the above induction for the persons listed above. | | |
| Name: | Signature: | Date: |

# Construction Environmental Management Plan
## Hutchinson Builders

### Mainsbridge School

### 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<br>• Compaction of soil by machinery and vehicle movements<br>• 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 oil, chemicals, grease or fuel spills or leaks from machinery.<br>• 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 F). | | | | |
| | | | | | 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 J of the CEMP. | | | | |
| Surface Water Quality | • Increased suspended sediment loads downstream of construction site<br>• Pollution of waterways by fuel or chemicals and wastewater<br>• 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 I 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. Proposed creek crossing technology and final designs would be consistent with Guidelines for laying pipes and cables in watercourses on waterfront land (DP&I, 2012) | | | Design Support | Design |
| Groundwater | • Impacts on water-tables<br>• Impacts on Groundwater quality | 3 | 2 | 6 | Should groundwater be encountered during construction activities, the management measures as detailed in Appendix I 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 | | | | Construction |

| Aspect category | Potential Impact | Consequence | Likelihood | Risk Rating | Mitigation Measures | Mitigated Likelihood | Residual Risk Rating | Responsibility | Timing Requirements |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | monitored and recorded to evaluate compliance with the allowable threshold. | | | | |
| | | | | | 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<br>• 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 I 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<br>• 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<br>Project Supervisor<br>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<br>Project Supervisor<br>Environmental Representative | Construction |
| | | | | | All works within close proximity to riparian zones to have adequate sediment and erosion control as | | | | |

| Aspect category | Potential Impact | Consequence | Likelihood | Risk Rating | Mitigation Measures | Mitigated Likelihood | Residual Risk Rating | Responsibility | Timing Requirements |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | specified in Appendix I of the CEMP ' Erosion and Sediment Control'. | | | | |
| | | | | | 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<br>Environmental Representative<br>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). | 1 | 3 | Project Manager | Construction |
| | | | | | 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. | | | | |
| Noxious weed management | Spread of Noxious Weeds | 3 | 3 | 9 | Establish a noxious weed management protocol that introduces an identification card for contractors (Refer to Appendix H of the CEMP – Weed Management Plan). | 2 | 4 | Environmental Representative | Construction |
| | | | | | Weed removal is to be carried out prior to works commencing. | | | Project Manager<br>Project Supervisor | |
| | | | | | 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. | | | | |

| Aspect category | Potential Impact | Consequence | Likelihood | Risk Rating | Mitigation Measures | Mitigated Likelihood | Residual Risk Rating | Responsibility | Timing Requirements |
|---|---|---|---|---|---|---|---|---|---|
| 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.<br>Wherever possible, clearing of native vegetation will be avoided. Stockpiles, storage and depot sites will be sited appropriately to avoid areas of native vegetation<br>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. | 1 | 5 | Project Manager<br>Project Supervisor | Construction |
| 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.<br>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<br>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.<br>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.<br>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 Department of Education's Project Manager as soon as possible to determine the subsequent course of action.<br>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<br>Environmental Representative | Construction |

| Aspect category | Potential Impact | Consequence | Likelihood | Risk Rating | Mitigation Measures | Mitigated Likelihood | Residual Risk Rating | Responsibility | Timing Requirements |
|---|---|---|---|---|---|---|---|---|---|
| Construction air quality | • Dust generated by vehicles travelling along unsealed roads<br>• Localised increases in dust generated during excavation works<br>• Dust from exposed spoil stockpiles<br>• 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. | | | | |
| | | | | | Vehicle use on unsealed surfaces would be avoided where possible. | | | | |
| Construction noise and vibration | • Disturbance from increase vehicle and machinery movements<br>• Noise from excavation activities<br>• Noise associated with generator and compressor operation<br>• 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:<br>7am – 6pm Monday to Friday and 8am – 1pm Saturday.<br>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 F 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<br>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<br>• Stockpiling activities on site | 4 | 4 | 16 | Use sediment fencing as required to ensure surface erosion is managed.<br>Use sediment fencing as required to ensure stockpiles on site are managed.<br>Ensure stockpiled soil material is not left near or within the creek line.<br>Battering of stockpiled material at 1:2 to reduce erosion.<br>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: *WSP Pty Ltd Asbestos Management Plan Warwick Farm Public School March 2019.*<br>Remove temporary works after they are no longer required to ensure area is left as it was found. | 2 | 8 | Project Manager<br>Project Supervisor | Construction |
| Construction traffic | • Increased traffic in residential areas<br>• Reduced safety for pedestrians and cyclists in residential areas<br>• Increased noise associated with increased traffic | 5 | 4 | 20 | Construction traffic will be management in accordance with the Traffic Management Plan (TMP) in Appendix G of the CEMP.<br>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.<br>No unnecessary idling of vehicles. | 2 | 10 | Environmental Representative<br>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.<br>• No burning of vegetation or other materials will be permitted on site.<br>• Energy efficient plant and equipment will be utilised to perform works.<br>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<br>• Loss of public and private property<br>• 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

### Mainsbridge School

### Appendix E: 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 Mainsbridge School at the Warwick Farm Public School.

# 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

The site is located within the South Creek alluvial soil landscape, comprising the present active floodplain of many drainage networks of the Cumberland Plain. This includes the South Creek, Eastern Creek, Ricarbys Creek and Prospect Creek Systems. The landscape is characterised by floodplains, valley flats and drainage depression of the channels. Soils are often very deep layered sediments over bedrock or relict soils.

Site observations from the EIS 2018 Stage 2 Environmental Site Investigation (ESI)ref: *E29918kPrpt2 rev1 EIS 2017* identified fill material generally extending 0.3-0.4m below ground level (mbgl). Deeper fill was identified through the centre of the site, extending >1.9mbgl at one location. The fill material comprised of silty clay or clayey silt with inclusions of ash and construction waste such as fibre cement fragments, glass and ceramic tiles.

Natural soils identified, comprised of alluvial silty clay and clayey silt, extending below the investigation levels, generally >0.8mbgl.

The site was observed to be generally flat, covered in grass with trees scattered across the site. Evidence of erosion and cracking was not noted.

## 4.2 Potential Impacts and Contamination

A preliminary site investigation conducted by EIS in 2017 ref: *EIS 2017 E29918kPrrp2 rev 1_Stage 2 Environmental Site Investigation* did not identify any significant off-site sources of contamination. Potential unverified fill material imported to site for levelling purposes was identified as an on-site

source of contamination, potential asbestos containing material (ACM) was noted on the surface of the western portion of site. Hazardous materials from demolition of the former buildings was also identified as an on-site source of contamination.

The Stage 2 ESI (2017) identified asbestos and lead in levels above the adopted health criteria for the site use as a school. An additional surface soil assessment was conducted by EIS in 2018 ref: *E29918kPrpt3 EIS* 2018 to further characterise the lead contamination identified in the Stage 2 ESI (2017).

A preliminary waste classification was provided by the Stage 2 ESI of *"General Solid Waste (Non-Putrescible) Containing Asbestos (Special Waste)"* and *Restricted Solid Waste (Non-Putrescible) Containing Asbestos (Special Waste)"*. Additional waste classification is required for materials to be removed off-site.

### 4.2.1 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.

## 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.<br>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 |
| 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<br>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<br>Site workers<br>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 Brickmakers Creek is located on the eastern boundary of the site. The Stage 2 ESI (2017) considered the creek to be likely to intercept overland flows (run-off) and stormwater collected via the on-site drainage network.

A review of Water NSW Bores did not identify any registered bores within 1km of the site, indicating that groundwater is currently not utilised as a resource (EIS Stage 2 ESI 2017). A Preliminary Groundwater Assessment was included in the Stage 2 ESI (2017) indicated that the standing water level of the site was between 2.88->4.2mbgl.

### 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 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. Considering the depth of excavation does not exceed 0.9mgl and the encountered depth to groundwater is > 2.88mbgl, groundwater is not anticipated to be encountered during the project.

### 5.4 Off-Site Flows

The Hutchinson Builders Environmental Management Plan ref: *Hutchinson Builders (2019) Environmental Management Plan: Mainsbridge Public School* has identified testing requirements for water prior to dewatering in accordance with discharge approval. Dependant on the location of the retained water, discharge may be directed to the adjacent Brickmakers Creek or the stormwater drain on Williamson Crescent. A detention basin has not been considered necessary for the proposed works.

### 5.5 Wet Weather Mitigation and Management

During wet-weather the mitigation and management measures presented in Table 2 are to be implemented. A full review of wet-weather and flood response and management is provided in Appendix N of this CEMP.

**Table2: 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<br>Site Manager | Project Manager<br>Site Manager | Construction |
| Minimising the extent of obstructions within the flood prone areas as far as practicable at all times during construction. | Project manager<br>Site Manager | Project Manager<br>Site Manager | Construction<br>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<br>Site Manager | Project Manager<br>Site Manager | Construction<br>Operation |
| Secure objects that are likely to float and cause damage. | Construction | Project Manager | Construction<br>Operation |
| Ensure construction equipment (or excess material) are removed from the low areas especially around creek areas and secured. | Construction | Site Manager | Construction<br>Operation |
| Relocate waste containers, chemicals and dangerous goods above the potential flood line and secured. | Construction | Site Manager | Construction<br>Operation |
| Locate plant and equipment on high ground when high rainfall/flooding is expected. | Per event | Site Manager<br>Site personnel | Construction |
| Amenities wastewater is transported off-site by a licenced operator to a | Construction | Project Manager | Construction |

| Table2: Wet-Weather Mitigation and Management | | | |
|---|---|---|---|
| **Mitigation/Measure** | **Implementation Stage** | **Responsibility** | **Site Use Phase** |
| licenced disposable facility (if applicable). | | | |
| 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

1 in 1-year ARI and 1 in 5-year ARI flood events and are to be managed under Section 4.4 and 5.5 of this Soil and Water Management Plan. 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. Refer to the *Cabramatta Creek Flood Study and Basin Review Strategy: Bewsher 2011.*

| Table 3: 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<br>Site Manager | Construction<br>Operation |
| Notification | | | |
| Declare the flood potential to the site staff and workers | When SES and BOM website identify flood warning for the area | Project Manager<br>HSE Advisor | Construction<br>Operation |
| Declaring the site closed. | When SES declare an imminent flood | Project Manager | Construction<br>Operation |
| Declaring the site reopened. | When SES have given the all clear | Project Manager | Construction<br>Operation |
| Evacuation | | | |
| The emergency exit route to be taken before flood waters rise is to exit to the compound on Williamson Crescent. Site sheds will be utilised as a refuge point for high flood waters. | Before flooding of area | All personnel | Construction |
| 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<br>Operation |

## 6. CONSULTATION WITH COUNCIL

Council were provided the initial version of this Soil and Water Management Plan on the 13th June 2019, council recommended the inclusion plans including sediment fencing, stockpiles and other proposed erosion controls No other amendments were considered necessary for this plan. Refer to Attachment A for evidence of consultation with council and Attachment B for the proposed erosion management strategies for the site.

## 7. 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.

GREENCAP
Going Further in Managing Risk

# Soil and Water Management Plan
## Hutchinson Builders

### Mainsbridge School

### Attachment A: Consultation with Council

## Alex Chaplin

**From:** Ian Stendara [mailto:StendaraI@liverpool.nsw.gov.au]
**Sent:** Wednesday, 3 July 2019 2:32 PM
**To:** Phil Ho
**Cc:** Matthew Roberts; Charlie Caraballo
**Subject:** RE: 25940_95 Lawrence Hargrave Road Warwick Farm_SSD 8792_Condition B23

Hi Phil,

Apologies for the delay. I've spoken to our land-development engineering coordinator (Charlie) and he advises that the location of sediment fences, stockpiles, controlled site access, and other sediment control measures that are proposed to be implemented should be indicated on a plan and submitted with the CEMP.

Perhaps these were meant to be attached? It would be great if you could forward a marked up plan for Charlie's team to comment on.

I advise you that our Environmental Health and Building surveyor teams don't have any other comments on the plan provided.

Kind regards,

**Ian Stendara**
Executive Planner

LIVERPOOL CITY COUNCIL | LIVERPOOL THE GREAT SOUTH WEST

02 8711 7511 | 0436 439 146 | StendaraI@liverpool.nsw.gov.au | www.liverpool.nsw.gov.au
Customer Service: 1300 36 2170 | 33 Moore Street Liverpool, NSW 2170, Australia

CASULA POWERHOUSE ARTS CENTRE | WOW WAY OUT WEST FESTIVAL | FOR AGES 0-15 | 10-14 JULY

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**From:** Phil Ho <Phil.Ho@hutchinsonbuilders.com.au>
**Sent:** Monday, 24 June 2019 1:18 PM
**To:** LCC <LCC@liverpool.nsw.gov.au>
**Subject:** RE: 25940_95 Lawrence Hargrave Road Warwick Farm_SSD 8792_Condition B23

Hi There

Has anyone been able to review this report for comment?

Should you have any questions, please do not hesitate to contact me.

Regards,

**Phil Ho**
Project Manager

HUTCHINSON BUILDERS | Established 1912

**T** 02 8344 2432 | **F** 02 9313 7386 | **M** 0427 858 900
**E** phil.ho@hutchies.com.au
**A** 23 DUNNING AVE, ROSEBERY NSW 2018 NSW

website | facebook | twitter | linkedin | instagram

**From:** Phil Ho
**Sent:** Thursday, 13 June 2019 10:55 AM
**To:** 'lcc@liverpool.nsw.gov.au'
**Subject:** 25940_95 Lawrence Hargrave Road Warwick Farm_SSD 8792_Condition B23

Hi There

In regards to SSD8792 for 95 Lawrence Hargrave Road Warwick Farm, as per Condition B23, please find attached Construction Soil and Water Management Plan for your comment.

Should you have any questions, please do no hesitate to contact me.

Regards,

**Phil Ho**
Project Manager

HUTCHINSON BUILDERS | Established 1912

**T** 02 8344 2432 | **F** 02 9313 7386 | **M** 0427 858 900
**E** phil.ho@hutchies.com.au
**A** 23 DUNNING AVE, ROSEBERY NSW 2018 NSW

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**Alex Chaplin**
(née Merrilees-White)
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Environmental Consultant | Greencap
Level 2 / 11 Khartoum Road, North Ryde NSW 2113
**T:** +61 2 9889 1800 | **M:** 0427 975 504 | **E:** alex.chaplin@greencap.com.au

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# Soil and Water Management Plan
## Hutchinson Builders

### Mainsbridge School

### Attachment B: Proposed Erosion Management Plans

DATE PLOTTED: 21 May 2019 3:05 PM BY : LIU, JING

CAD FILE: U:\Archive\WSP\Data\Melbourne\Structures\Projects\2304785T_Western Sydney School_Drawings\Civil\Works_Warwick Farm PS(mainsbridge relocation)\WSP-CV-0060.dwg

## LEGEND

- PROPOSED CATCHDRAIN
- PROPOSED SEDIMENT FENCE
- MESH & GRAVEL INLET FILTER
- GEO-TEXTILE INLET FILTER
- PROPOSED TEMPORARY CONSTRUCTION ENTRY/EXIT
- PLACE SANDBAGS EVERY 20m
- POSSIBLE STOCKPILE LOCATION
- 1% AEP FLOOD LEVEL
- TM — TM — TRAFFIC MANEUVERING PATH

**FOR APPROVAL**

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DEPARTMENT OF EDUCATION
MAINSBRIDGE SSP
LAWRENCE HARGRAVE ROAD

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SEDIMENT & EROSION CONTROL PLAN

| ISSUE | REVISION | DATE | INITIAL |
|---|---|---|---|
| C1 | ISSUED FOR CC APPROVAL | 21.05.2019 | AV |

## SEDIMENT & EROSION CONTROL PLAN

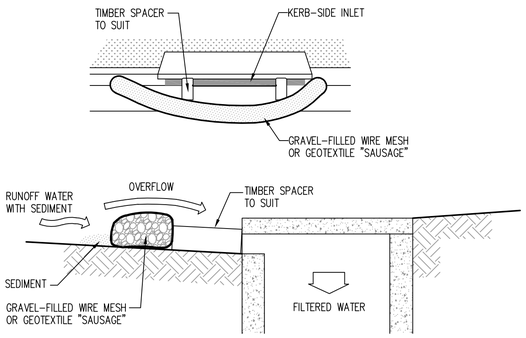
SCALE: 1: 300

0 5 10 15 20 25 30m
6 4 2
SCALE 1:300

CIVIL DRAWING

| | | | |
|---|---|---|---|
| Designed | PS | Approved | North |
| Drawn | JL | Project Engineer/Director Date | |
| Scale | 1:300@A1 | Drawing No: | Issue |
| Date | JULY 2017 | WSP-CV-0060 | C1 |

DATE PLOTTED: 21 May 2019 3:05 PM BY : LIU, JING

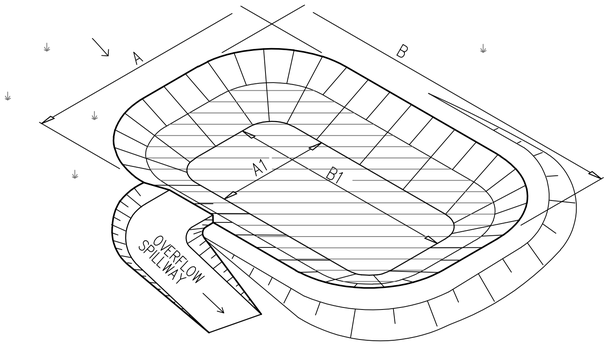



MESH & GRAVEL INLET FILTER CONSTRUCTION NOTES:

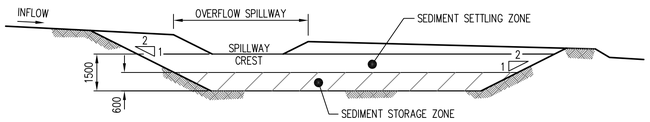
1. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
2. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
3. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN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

## MESH & GRAVEL INLET FILTER

SCALE N.T.S.



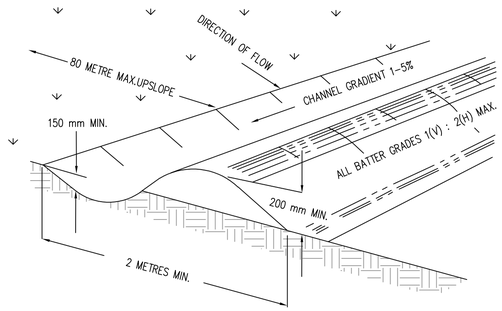

PERSPECTIVE VIEW




TYPICAL SECTION

## TYPE 'D' & 'F' SEDIMENTATION BASIN

N.T.S.



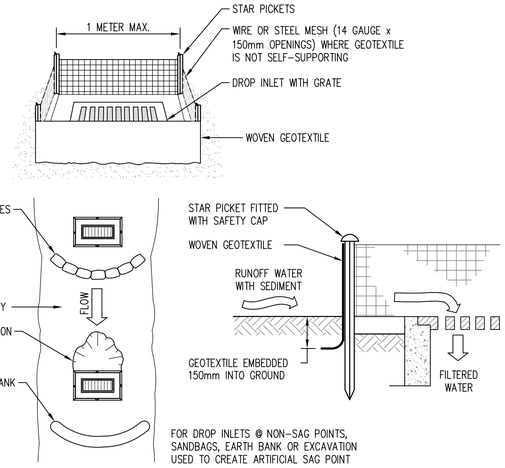

NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAC.UPSLOPE LENGTH IS 80 METERS.

CATCH DRAIN CONSTRUCTION NOTES:

1. CONSTRUCT ALONG GRADIENT AS SPECIFIED.
2. MAXIMUM SPACING BETWEEN BANKS SHALL BE 80 METRES.
3. DRAINS TO BE OF PARABOLIC OR TRAPEZOIDAL CROSS SECTION NOT V-SHAPED.
4. EARTH BANKS TO BE ADEQUATELY COMPACTED IN ORDER TO PREVENT FAILURE.
5. CONSTRUCTION IS OF A TEMPORARY NATURE AND SHALL BE COMPACTED AT THE END A DAYS WORK OR IMMEDIATELY PRIOR RAIN.
6. ALL OUTLETS FROM DISTURBED LANDS ARE TO FEED INTO SEDIMENT BASIN OR SIMILAR.
7. DISCHARGE RUNOFF COLLECTED FROM UNDISTURBED LANDS ONTO EITHER A STABILISED OR AN UNDISTURBED DISPOSAL AISTE WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED.
8. COMPACT WITH A SUITABLE IMPLEMENT IN SITUATIONS WHERE THEY ARE REQUIRED TO FUNCTION FOR MORE THAN FIVE DAYS.
9. EARTH BANKS TO BE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT WILL IMPEDE NORMAL FLOW.

## CATCH DRAINS

SCALE N.T.S.

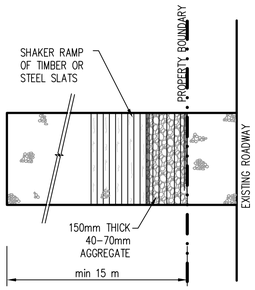



GEOTEXTILE INLET FILTER CONSTRUCTION NOTES:

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE.
2. PICKET SPACING TO BE MAXIMUM 1.0m.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILES UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

## GEOTEXTILE INLET FILTER

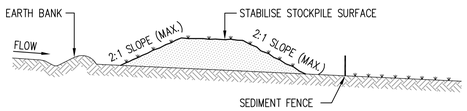
SCALE N.T.S.




PLAN

## STABILISED SITE ACCESS WITH SHAKER RAMP

N.T.S.

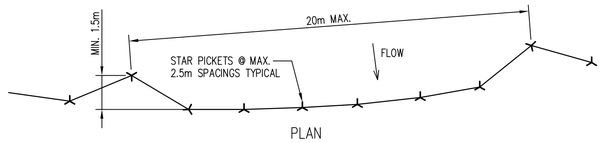



STOCKPILE CONSTRUCTION NOTES:

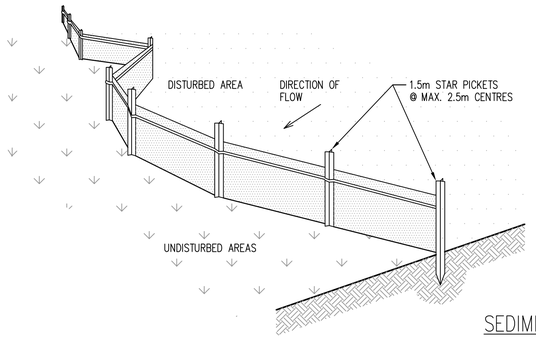
1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METRES IN HEIGHT.
4. WHERE THEY ARE TO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

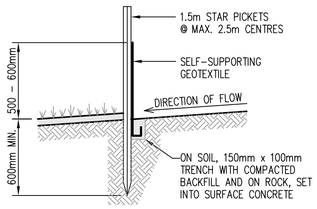
## STOCKPILES

SCALE N.T.S.




PLAN




SECTION DETAIL

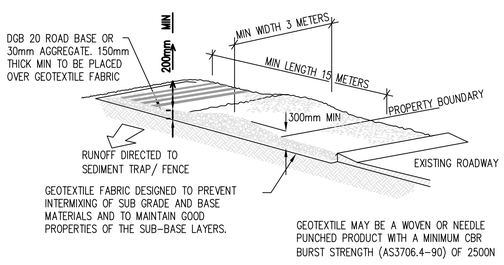
## SEDIMENT FENCE

SCALE N.T.S.

SEDIMENT FENCE 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 1.5m LONG STAR PICKETS INTO GROUND @ 2.5m 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.

CONSTRUCTION SITE




## STABILISED SITE ACCESS WITH SHAKER RAMP

N.T.S.

NOTES:

1. THIS DEVICE IS TO BE LOCATED AT ALL EXITS FROM CONSTRUCTION SITE.
2. THIS DEVICE IS TO BE REGULARLY CLEANED OF DEPOSITED MATERIAL SO AS TO MAINTAIN A 50mm DEEP SPACE BETWEEN PLANKS.
3. ANY UNSEALED ROAD BETWEEN THIS DEVICE AND NEAREST ROADWAY IS TO BE TOPPED WITH 100mm THICK 40-70mm SIZE AGGREGATE.
4. ALTERNATIVELY, THREE(3) PRECAST CONCRETE CATTLE GRIDS (AS MANUFACTURED BY "HUMES CONCRETE MAY BE USED. 1, 2 & 3 ABOVE ALSO APPLY.

CONSTRUCTION SEQUENCE

WORKS SHALL BE UNDERTAKEN IN THE FOLLOWING SEQUENCE:

1. INSTALL SEDIMENT FENCING AND CUT DRAINS TO MEET THE REQUIREMENTS OF THE SEDIMENT AND EROSION CONTROL PLAN. WASTE COLLECTION BINS SHALL BE INSTALLED ADJACENT TO SITE OFFICE.
2. CONSTRUCT STABILISED SITE ACCESS IN ACCORDANCE WITH COUNCIL'S REQUIREMENTS.
3. REDIRECT CLEAN WATER AROUND THE CONSTRUCTION SITE.
4. INSTALL SEDIMENT CONTROL PROTECTION MEASURES AT ALL NATURAL AND MAN-MADE DRAINAGE STRUCTURES. MAINTAIN UNTIL ALL THE DISTURBED AREAS ARE STABILISED.
5. CLEAR AND STRIP THE WORK AREAS. MINIMISE THE DAMAGE TO THE GRASS AND LOW GROUND COVER OF NON-DISTURBED AREAS.
6. ANY DISTURBED AREAS, OTHER THAN BUILDING PAD AREAS, SHALL IMMEDIATELY BE COVERED WITH SITE TOPSOIL WITHIN 7 DAYS OF CLEARING. BUILDING PAD AREAS SHALL BE COVERED WITH BITUMEN EMULSION AS SPECIFIED.
7. APPLY PERMANENT STABILISATION TO SITE (LANDSCAPING).

GENERAL INSTRUCTIONS

1. THIS SEDIMENT AND EROSION CONTROL WORKS FOR THE SITE SHALL BE CARRIED OUT IN ACCORDANCE WITH THE REQUIREMENTS OF "MANAGING URBAN STORMWATER – SOILS AND CONSTRUCTION, 4TH EDITION (2004)" BY LANDCOM.
2. AS REQUIRED BY LIVERPOOL CITY COUNCIL SEDIMENT CONTROL MEASURES WILL BE REQUIRED DURING THE CONSTRUCTION OF ALL DEVELOPMENTS/BUILDING WORKS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY THAT THE WORKS ARE CARRIED OUT IN ACCORDANCE WITH THE SEDIMENT AND EROSION CONTROL PLAN AND COUNCIL'S REQUIREMENTS.
3. THE CONTRACTOR SHALL ENSURE THAT ALL SUBCONTRACTORS ARE INFORMED OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE AREAS.
4. THE NON-DISTURBED PORTION OF THE CATCHMENT OUTSIDE OF OPERATING AREA IS TO BYPASS THE BASINS BY MEANS OF LINED CATCH DRAINS.
5. ENSURE THAT ALL DRAINS ARE OPERATING EFFECTIVELY AND SHALL MAKE ANY NECESSARY REPAIRS. REMOVE TRAPPED SEDIMENT WHERE THE CAPACITY OF THE TRAPPING DEVICE FALLS BELOW 60%.
6. CONSTRUCT ADDITIONAL EROSION OR SEDIMENT CONTROL WORKS AS MAY BE APPROPRIATE TO ENSURE THE PROTECTION OF DOWNSLOPE LANDS AND WATERWAYS.
7. MAINTAIN EROSION AND SEDIMENT CONTROL MEASURES IN A FULLY FUNCTIONING CONDITION AT ALL TIMES UNTIL THE SITE IS REHABILITATED.
8. REMOVE TEMPORARY SOIL CONSERVATION STRUCTURES AS THE LAST ACTIVITY IN THE REHABILITATION PROGRAM.

| ISSUE | REVISION | DATE | INITIAL |
|---|---|---|---|
| C1 | ISSUED FOR CC APPROVAL | 21.05.2019 | AV |

CAD FILE: U:\Archive\WSP\Data\Melbourne\Structures\Projects\23047785T_Western Sydney School_Drawings\Civil\Works_Warwick Farm PS(mainsbridge relocation)\WSP-CV-0060.dwg

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MAINSBRIDGE SSP
LAWRENCE HARGRAVE ROAD

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SEDIMENT & EROSION CONTROL DETAILS

CIVIL DRAWING

| | | | |
|---|---|---|---|
| Designed | PS | Approved | North |
| Drawn | JL | Project Engineer/Director | Date |
| Scale | N.T.S. | Drawing No: | Issue |
| Date | JULY 2017 | WSP-CV-0061 | C1 |

# Construction Environmental Management Plan
## Hutchinson Builders

### Mainsbridge School

### Appendix F: 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 Mainsbridge School at the Warwick Farm Public School.

# 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 **Appendix A** of this procedure. Proposed treatment methods for each waste type have also been indicated.

## 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: *WSP PS113561 Warwick Farm PS AMP RevB March 2019*, 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 2016 made under section 274 of the Work Health and Safety Act 2017. Handling and disposal of asbestos waste;
  - 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<br>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

### Mainsbridge School

### Attachment A: WSP Asbestos Management Plan

HAYBALL PTY LTD

# ASBESTOS MANAGEMENT PLAN

## WARWICK FARM PUBLIC SCHOOL LAWRENCE HARGRAVE ROAD, WARWICK FARM, NSW 2170

MARCH 2019

Question today
*Imagine tomorrow*
Create for the future

# Asbestos Management Plan
# Warwick Farm Public School
# Lawrence Hargrave Road, Warwick Farm, NSW 2170

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| REV | DATE | DETAILS |
|---|---|---|
| B | 22/03/2019 | Final |

| | NAME | DATE | SIGNATURE |
|---|---|---|---|
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| Reviewed by: | Imogen Powell | 20/03/2019 | |
| Approved by: | Kieran White | 20/03/2019 | |

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# ABBREVIATIONS

| | |
|---|---|
| ACM | Asbestos-containing materials |
| AMP | Asbestos management plan |
| ARCP | Asbestos removal control plan |
| DoE AMP | Department of Education Asbestos Management Plan |
| mAHD | Metres Australian Height Datum |
| mBGL | Metres below ground level |
| NEPM | National Environment Protection (Assessment of Site Contamination) Measure 2013 |
| NSW EPA | New South Wales Environment Protection Authority |
| POEO Act | Protection of the Environment Operations Act 1997 |
| RAP | Remediation Action Plan |
| SWMS | Safe work method statement |

# 1 INTRODUCTION

## 1.1 BACKGROUND

WSP Australia Pty Ltd (WSP) was commissioned by Hayball Pty Ltd (the client) to prepare this asbestos management plan (AMP) for the proposed relocation of Mainsbridge School to Warwick Farm Public School, Lawrence Hargrave Road, Warwick Farm NSW. This AMP only applies to the developable portion of Warwick Farm Public School with this area nominated as 'the site' and illustrated in Figure 1, Appendix A.

It is understood the proposed development within the school precinct will be to facilitate children with special needs and involve the building of learning spaces, offices, carparks and landscaping. Following a review of historical documents provided to WSP, including the Remediation Action Plan (RAP) developed by Environmental Investigation Services (RAP, EIS[1]), contaminants of concern, including friable and non-friable asbestos, have been identified within fill materials on site. The conceptual site model adopted by EIS concludes that all fill materials on site are impacted with non-friable asbestos (ACM) to the depth of natural soils with exception to the south-western portion where friable asbestos in the form of asbestos fines/fibrous asbestos (AF/FA) was identified.

It is also noted that at the time of writing, a data gap assessment was still required to be conducted in the north-eastern portion of the site. As a conservative measure, this area has been assumed to be impacted with ACM unless validated otherwise or investigation results identify the presence of ACM or friable asbestos.

This AMP is required under the *Work Health and Safety Regulations 2017* and has been developed specifically to outline the necessary requirements for the ongoing management of asbestos at the site during development works. This includes recommendations for proposed strategies for handling, removal, transportation and disposal procedures. The AMP identifies the potential hazards associated with the site in its current condition and outlines management strategies to mitigate these hazards during proposed site works.

The risk to human health associated with the project is considered to be low if managed in accordance with this AMP. This AMP will need to be reviewed and updated in the event that the site is developed for other uses or if site conditions change.

## 1.2 OBJECTIVES

The objectives of the AMP are to outline the required procedures for the handling of asbestos containing materials and asbestos impacted soils during the development in accordance with relevant National Codes of Practice and Work Health and Safety (WHS) Legislation. Specifically, the objectives are to provide:

- documentation of the existing extent of asbestos impacted soils (friable/non-friable) at the site;
- safe work procedures required to ensure that works are carried out in such a way as to minimise potential health effects to both personnel engaged in the works and any health risks to the public or the operational school;
- procedures required to ensure that all personnel engaged in the works comply with the terms and conditions of the AMP;
- ongoing management requirements of the site to ensure that the risk posed by any potential asbestos impact at the site is properly managed; and

[1] *Report to Hayball on Remediation Action Plan for Proposed Relocation of Mainsbridge School to Warwick Farm Public School, Lawrence Hargrave Road, Warwick Farm, NSW.* Environmental Investigation Services, 10 October 2018, E29918KPrpt-RAP Rev 1

— assign responsibilities under the AMP, provide contingency plans and timeframes for application of the AMP.

## 1.3 CONTAMINANT TYPE AND EXPOSURE PATHWAYS

Non-friable asbestos in the form of ACM is defined by Safe Work Australia (2016) as being "*...material containing asbestos that is not friable asbestos, including material containing asbestos fibres reinforced with a bonding compound.*" Mechanical disturbance of fragments of ACM may result in the release of fibres and therefore, such activities should be managed to prevent any fibres becoming airborne. The health effects of asbestos are detailed in enHealth (2005) *Management of Asbestos in the Non-Occupational Environment*. For asbestos, the exposure pathway comprises solely inhalation of fibres that may be generated from the disturbance of asbestos fragments.

Friable asbestos (AF/FA) is defined by Safe Work Australia (2016) as being "*...material that is in a powder form or that can be crumbled, pulverised or reduced to a powder by hand pressure when dry, and contains asbestos*". Asbestos fibres can range in size from 0.1 to 10 microns (1/10 the size of a grain of sand), and are a potent particulate respiratory hazard. The small fibres gain relatively easy access to the lung airways and air sacs. Damage to the respiratory tract generally tends to be time/dose dependent. An individual exposed to high doses of asbestos for long periods of time will have an increased risk of developing asbestos related diseases. In addition, the effects of asbestos related diseases are usually not detectable for 1 to 30 years after the initial exposure. This is called the latency period, and is a distinguishing feature of asbestos related diseases.

The presence of friable asbestos in fill materials have been identified in the south-western portion of the site with the remaining developable area characterised by ACM in fill materials as concluded in the conceptual site model provided in the RAP. Extent of asbestos impacts are presented in Figure 2, Appendix A.

# 2 APPLICATION AND RESPONSIBILITES OF THE AMP

## 2.1 APPLICATION OF AMP

This AMP shall apply from the commencement of ground disturbance works within the site until appropriate capping or removal strategies have been validated.

The responsibilities for site asbestos management apply to all works from the commencement of civil works/demolition until the completion of the development, except where a more specific asbestos management or works plan will be provided by a person conducting business or undertaking (PCBU), i.e., a detailed asbestos removal plan.

## 2.2 PRINCIPAL CONTRACTOR RESPONSIBILITY

In accordance with the *Work Health and Safety Regulation 2017*, a principal contractor (Person Conducting a Business or Undertaking) shall be appointed for the proposed works. The principal contractor must:

- be responsible for the proposed project work at all times until the work is completed;
- ensure that all persons involved with proposed project work have undertaken occupational health and safety training;
- keep records of induction training for site workers and any site specific training;
- ensure that any subcontractors provide safe work method statements for the activities for which they are engaged;
- monitor any subcontractors to ensure that they are complying with the safe work method statements;
- maintain a hazardous substances register for all hazardous substances used or present on site; and
- comply with occupational health and safety and environmental legislation, regulations, standards, codes and the site-specific rules relating to safety contained in this AMP and the overarching Department of Education Asbestos Management Plan (DoE AMP).

## 2.3 LICENSED ASBESTOS REMOVALIST

A Class A (friable and non-friable) licensed asbestos removal contractor shall be engaged to complete the asbestos impacted material relocation/removal and other associated asbestos related works. WSP notes that the majority of the site fill materials have been characterised as non-friable. However, due to the identification of friable asbestos materials and the conservative requirements of the DoE AMP, WSP recommends that a Class A licensed asbestos removal contractor is engaged for all asbestos in soils related works on site.

The licensed asbestos removal contractor will be the primary person responsible and in charge for works on site involving ACM or friable asbestos impacted soils. Their responsibilities include:

- Notifying SafeWork NSW and preparing a site-specific Asbestos Removal Control Plan (ARCP) prior to any asbestos removal works being completed;
- ensuring compliance with relevant legislation and the conditions of this AMP and over-arching DoE AMP;

- ensuring handling and management of asbestos contaminated soils at the site is in accordance with relevant legislation;
- ensuring appropriate environmental and safety controls outlined in this AMP are maintained for the duration of the works; and
- assisting all site sub-contractors, where required, in complying with relevant legislation and the procedures outlined in this AMP.

## 2.4 OCCUPATIONAL HYGIENIST

Occupational hygiene panel contractors (contractors nominated to perform occupational hygiene works in accordance with the DoE AMP) in the form of Licensed Asbestos Assessors (LAAs) shall be engaged to assess any suspected asbestos containing materials when required and perform air-borne asbestos monitoring for the duration of asbestos related site activities:

The occupational hygienist (LAA) will:

- complete static asbestos air monitoring during asbestos removal works as well as the excavation and transport of impacted materials until such time that the final clearance inspection has been completed. All daily results of air monitoring activities are to be displayed or be readily available for the information of site workers. All air monitoring events shall be undertaken in accordance with the *National Occupational Health and Safety Commission's Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres* [NOHSC: 3003(2005)];
- conduct clearance inspections and prepare clearance certificates (unless the clearance inspections are performed by the environmental consultant for the purpose of site validation with respect to the RAP);
- Provide site specific asbestos awareness training for all contractors who may be impacted or involved with asbestos related tasks and maintain a register until the completion of works (if engaged for fulltime site supervision);
- audit asbestos controls and provide advice in relation to the management of asbestos issues associated with the development (if engaged for fulltime site supervision); and
- ensure that the licensed asbestos removalist complies with the AMP (if engaged for fulltime site supervision).

# 3 TRAINING, AWARENESS AND LEGISLATIVE REQUIREMENTS

The Principal Contractor must not allow any person to carry out project works unless he/she is satisfied that the person has undergone WHS induction training.

Work undertaken at the site is to be managed in accordance with regulatory requirements and the management systems of the site owner/operator. Prior to the commencement of any task, a safe work method statement (SWMS)/job hazard assessment (JHA) must be prepared to identify any potential for workers to be exposed to contaminants of concern.

In addition, all workers that will conduct work potentially involving asbestos on the site should have undertaken asbestos awareness training (either formal or in-formal, site specific) to ensure that workers on the site are familiar with the risks posed from asbestos and asbestos controls.

## 3.1 NON-COMPLIANCE WITH THE AMP

Non-compliance with the intent and procedures of the AMP may occur during the implementation of the AMP. Where a non-compliance is identified by a responsible organisation, they shall inform the site operator of the non-compliance in writing. The site operator shall have the responsibility of informing the non-complying party in writing of the non-compliance. The non-compliant party will be required to rectify the non-conformity as soon as possible, as per the requirements of the relevant procedure(s) where the non-compliance has occurred. Detail of the action taken to rectify the non-compliance shall be provided to the site owner. Where a non-compliance cannot be rectified, the AMP is to be reviewed.

## 3.2 LEGISLATIVE REQUIREMENTS AND GUIDELINES

Key legislation relevant to contaminated soil and asbestos related management is listed in Table 3.1 below.

Table 3.1 Key legislation and guidelines

| RELEVANT KEY LEGISLATION AND GUIDELINES | APPLICABLE TO PROJECT |
|---|---|
| *Contaminated Land Management Act 1997.* | Establishes a process for investigating and (where appropriate) remediating land areas where contamination presents a significant risk of harm to the environment. |
| *Protection of the Environment Operations Act 1997* (POEO Act) and *Protection of the Environment Operations Regulation 1997* (POEO Regulation) | This Act provides for the control of polluting activities in NSW in order to prevent pollution of the environment. Offences exist in relation to activities that cause water, soil and air pollution.<br>The Regulation details requirements in relation to transportation, collection, storage or disposal of asbestos waste. |
| Landcom 2004, *Managing Urban Stormwater: Soils and Construction.* | Provides guidance on erosion control measures to be implemented during land development activities. |
| NSW EPA 2014, *Waste Classification Guidelines.* | Defines types of wastes, procedures for assessing waste, waste storage and disposal requirements, record keeping and licence requirements. |

| RELEVANT KEY LEGISLATION AND GUIDELINES | APPLICABLE TO PROJECT |
|---|---|
| Contaminated land management Guidelines for the NSW Site Auditor Scheme (2017) (3rd edition) | Outlines NSW EPA requirements for assessing and remediating contaminated sites to protect the environment and minimise the risk to public health from the future land use. |
| *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM, as amended 2013). | Provides adequate protection of human health and the environment, where site contamination has occurred, through the development of an efficient and effective approach to the assessment of site contamination. |
| WA Department of Health (DoH) 2009, *Guidelines for the Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia.* | Provides guidance for assessing and remediating asbestos impacted sites in order to minimise the risk to public health from the future use of the site. |
| SafeWork Australia document *How to Safely Remove Asbestos: Code of Practice 2016.* | Provides guidance for the safe removal of ACM. |
| Department of Education Asbestos Management Plan | Provides guidance with respect to the management of asbestos within school precincts |

# 4 REMEDIATION OF IMPACTED SOILS

In accordance with the provided RAP, remediation works for the site are divided into 5 areas with remediation and validation activities expected to occur sequentially. However, there are no concerns from an occupational hygiene perspective if these stages are not performed sequentially. The 5 areas and corresponding remediation strategies are as follows:

- Areas 1 and 2 will involve the excavation and off-site disposal of approximately 2,000 $m^3$ of non-friable asbestos and lead impacted fill materials;
- Area 3 will involve the excavation and off-site disposal of approximately 5 $m^3$ of friable asbestos impacted fill materials;
- Area 4 will involve the onsite sparrow picking of approximately 2,000 $m^3$ of non-friable asbestos impacted fill materials; and
- Area 5 will involve the onsite sparrow picking of approximately 400 $m^3$ of non-friable asbestos impacted fill materials.

It is noted that at the time of writing, a data gap assessment was yet to occur on a portion of the site. The above remediation strategies may change or vary following completion of this investigation.

# 5 ASBESTOS HANDLING AND DISTURBANCE PROCEDURES

The AMP is to be implemented at the site during works involving the disturbance of asbestos impacted soils or materials at the site. The objective of the plan is to describe procedures to minimise exposure of all site occupants to asbestos materials through the development and implementation of the management systems outlined herein.

## 5.1 ASBESTOS REMOVAL/DISTURBANCE PROCEDURES

The removal/disturbance of asbestos material from the site shall be conducted in accordance with SafeWork Australia document *How to Safely Remove Asbestos: Code of Practice 2016* with reference to the DoE AMP. A general procedure includes but is not limited to the following steps:

- 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 in accordance with Section 5.4;
- 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 materials in accordance with Section 5.9;
- 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 for personnel as described in Section 5.7;
- appropriate personal protective equipment (PPE) to be worn by all personnel entering work area as described in Section 5.3;
- 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;
- all tools, plant and equipment used in the removal area will be decontaminated as described in Section 5.7;
- removal of soils/rubble by trucks are to be conducted in accordance with Sections 5.2 and 5.6;
- contaminated soil to be disposed of at licensed asbestos waste facility in accordance with Section 5.2; and
- truck wheels to be cleaned prior to leaving site.

## 5.2 ASBESTOS DISPOSAL PROCEDURES

### *5.2.1 WASTE CLASSIFICATION FOR OFF-SITE DISPOSAL*

Waste classifications are required for any excavated soil or fill materials which are to be disposed off-site. Fill material to be taken off-site for disposal shall be assessed in accordance with the waste classification guidelines (NSW EPA,

2014). Materials excavated from the site should be tracked from 'cradle to grave', in order to provide detailed and accurate information about the location and quantity of all materials both on and off-site from the time of their excavation until their disposal.

For any truck or bin leaving the site, the following information would be recorded:

- origin of material;
- material type;
- approximate volume; and
- truck and/or bin registration number.

Fill material containing asbestos are to be classified as asbestos waste with the following to be applied:

- The POEO Act defines 'asbestos waste' as any waste that contains asbestos, including fragments or fibres. It is understood that as a result, the NSW EPA considers asbestos contaminated soil to be an asbestos waste. In addition, the POEO Waste Regulation provides certain requirements for the transportation of asbestos. It is understood that the NSW EPA requires any management of soil containing asbestos waste on or off the site to be at least equal to controls set out by the Regulation; and
- All asbestos contaminated soil or fill leaving the site will be transported in a leak proof covered vehicle and disposed of at a licensed facility in accordance with waste classification guidelines (NSW EPA, 2014).

All work shall be carried out in accordance with the SafeWork Australia document *How to Safely Remove Asbestos: Code of Practice 2016* made under section 274 of the Work Health and Safety Act 2017. Handling and disposal of asbestos waste material should also be carried out in accordance with the POEO Act, POEO Waste Regulation and waste classification guidelines (NSW EPA, 2014).

## 5.3 PERSONAL PROTECTION EQUIPMENT

PPE will be used to protect individuals from actual or potential exposure to asbestos fibres. Personnel entering the exclusion zone/asbestos removal area must be supplied with, and use, PPE that is suitable for the work being undertaken. All personnel working within the exclusion zone are to wear a level of protection as follows:

- disposable overalls (TYVEK) rated type 5, category 3 or equivalent;
- disposable gloves and booties;
- half face disposable or cartridge type particulate respirator – Class P3 or respirator for friable asbestos removal; and/or
- as a minimum, half face disposable or cartridge type particulate respirator – Class P2 or respirator for non-friable asbestos removal.

Respirators to be used will be approved for protection against asbestos. Respirator filters will be changed upon detection breakthrough, or when breathing difficulty is encountered due to particulate loading, or as per manufacturer's instructions.

Personnel will discard protective clothing which becomes torn, punctured, or appears to deteriorate under chemical action. All discarded clothing will be placed into specially marked plastic bags and disposed of as asbestos waste. If protective equipment appears to deteriorate under chemical action, the site operator is to be notified immediately.

### *5.3.1 CLOTHING INSPECTION*

PPE should be inspected before and during use. The following checks should be made before use:

- Determine that the clothing material is correct for the specific task at hand.
- Visually inspect for:
  - imperfect seams
  - tears
  - malfunctioning closures.
- During the work task, periodically inspect for the following:
  - closure fails
  - punctures
  - tears
  - seam discontinuity.

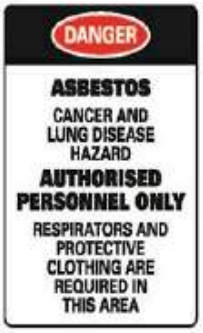
### 5.3.2 PLANT

All plant operators must close cabin doors and windows and set air conditioning to re-circulate when operating within the asbestos work area.

In any plant with open cabins, operators must wear PPE and respiratory protective equipment (RPE) as described above.

## 5.4 BARRICADING AND SIGNAGE

Necessary measures are to be in place for the effective exclusion of unauthorised persons to impacted areas. All areas of a workplace that contain asbestos, including plant, equipment or components, must be signposted with warning signs, or labels, as appropriate to ensure personnel are not unknowingly exposed to asbestos when undertaking operational activities.




The location, type and positioning of signs and labels must be decided, or authorised, by a competent person. For the removal of friable asbestos impacted soils, a minimum exclusion zone of 10 metres is recommended. Asbestos warning signs must comply with the requirement of AS 1319-1994 for size, illumination, location and maintenance. Warning signs may include some of the above examples. With respect to barricade fencing, chain-wire fencing/ATF with shade cloth would be considered suitable.

## 5.5 STOCKPILE MANAGEMENT

All stockpiles must be kept damp (not flooded) and covered by geofabric/plastic, sealed with a soil binding product (dust-bloc) or sealed with hydro mulch as soon as practical. Regular inspections of long term stockpiles should be undertaken to ensure the controls implemented are in good condition, no dust is being generated from the stockpile and no runoff is occurring.

## 5.6 DUST MANAGEMENT

The following information is provided as a guide to control dust during earthworks in areas of known or suspected asbestos impacted soil:

- prior to the first removal of the sub surface, dampening with water of the proposed excavation area;
- prior to movement of stockpiled materials, dampening with water across the stockpile surface;
- during soil/rubble movement, the materials should be kept sufficiently damp to minimise the emission of dust; and
- if trucks are required to enter the restricted area, the wheels of the trucks and the sides of the body should be washed down before the truck leaves the restricted area. This can be performed within a wash-bay or on sacrificial geofabric to be disposed of as asbestos waste.

The excavation surface should be continually monitored and the surface wet down as drying occurs. This process should continue until the ACM or asbestos impacted soils excavation works in the Asbestos Work Area are completed.

The above method relies on the following factors:

- use of water fogging nozzle (not high pressure hoses); and
- constant vigilance of trained operators/contractor.

## 5.7 DECONTAMINATION

The Licensed Asbestos Removal Contractor shall ensure that an area is established on the site for people to personally decontaminate themselves and any tools and equipment when they are entering and leaving each asbestos works zone (5 stage decontamination unit for friable asbestos removal and asbestos decontamination area for non-friable removal).

The details for decontamination shall be specified in the Licensed Asbestos Removal Contractor's Asbestos Removal Control Plan and SWMS for asbestos related work and is to comply with the requirements outlined in SafeWork 2016: *How to Safely Remove Asbestos*.

In summary, when leaving the work area all site personnel must enter the decontamination unit/area, wash footwear, remove obvious signs of asbestos dust/impacted soils and remove coveralls and mask and place in 200 µm thick polythene bag.

Non-reusable clothing and masks will be collected in asbestos bags for disposal by licensed asbestos removal contractors as asbestos waste. No waste will be removed from the site without the approval of the site operator. Any waste to be removed from the site would be undertaken in accordance with relevant NSW EPA guidelines.

At the conclusion of the works, any plant or equipment shall be parked within a designated washing area or wash bay. Decontamination should include removing all soil from the tracks, body and bucket of the plant as far as reasonably practicable.

All water generated from decontamination of asbestos impacted materials, persons or plant will be considered to be impacted by asbestos. All asbestos impacted water must be captured and prevented from movement outside the exclusion zone

## 5.8 VALIDATION OF ASBESTOS REMOVAL

In the event that non-friable asbestos impacted soils are removed, to validate the successful removal, a visual clearance inspection will be performed by the LAA (or environmental consultant for the purpose of satisfying the RAP) resulting in a clearance certificate post the successful remediation.

For the removal of friable asbestos impacted soils, validation sampling of the footprint/excavation is required to be undertaken at a rate of 1 per 25m$^2$ base or 1 per 5 metre linear wall in accordance with the requirements of NEPM (2013) and the WA DoH (2009) asbestos guidelines.

Representative stockpile sampling for characterisation purposes should be undertaken in accordance with NEPM, which also references WA DoH (2009). Sample density will be determined based on the volume of material stockpiled. Asbestos sampling will be undertaken at a rate of one sample per 70 m$^3$ of material (in accordance with WA DoH, 2009).

## 5.9 AIR MONITORING

During all asbestos excavation, transport and placement works on site involving asbestos impacted materials, airborne asbestos fibre monitoring will be undertaken by the LAA using calibrated portable air sampling pumps. Monitoring locations shall be determined by the LAA but shall include at least 6 locations surrounding the work area or site boundary. At the end of each monitoring period the pump and attached filter will be collected and analysed at a NATA-accredited laboratory.

Monitoring works shall be conducted in accordance with NOHSC Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres 2nd Edition (NOHSC:3003 [2005]).

The results of air monitoring will be available prior to the commencement of work on the following business day (with exception to weekend monitoring). Daily air monitoring reports shall be displayed in a common area outside of the asbestos work area (e.g. site office or lunch shed) or be able to be produced upon request.

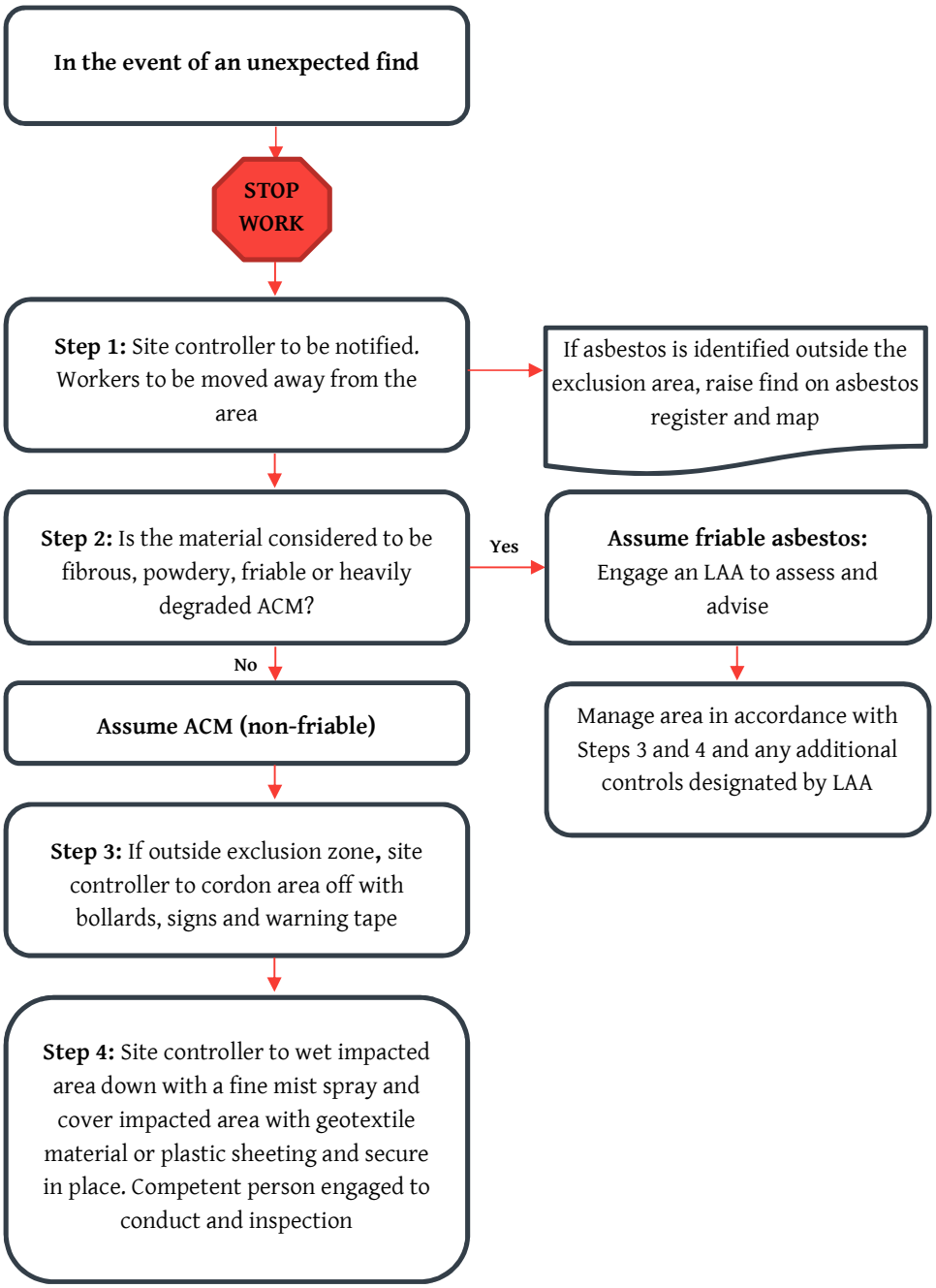
The following action levels will be applied upon receipt of daily results:

- reading of less than 0.01 fibres/mL – control measures in place are working effectively, site works to continue;
- reading between 0.01 and 0.02 fibres/mL – a review of control measures shall be completed in the work area; and
- reading greater than 0.02 fibres/mL – works shall cease until the cause of contamination is identified and rectified (the removal contractor is required to notify SafeWork regarding the level of exceedance).

## 5.10 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 previous sampling points may vary, and further hazards may arise from unexpected sources and/or in unexpected locations during site works. The nature of any residual hazards which may be present at the site are generally detectable through visual means such as friable asbestos lagging.

As a precautionary measure to ensure the protection of the workforce and surrounding community, should additional asbestos be identified (or any other unexpected potentially hazardous substance), the procedure summarised in the below flow chart is to be followed.


In the event of an unexpected find
STOP WORK
Step 1: Site controller to be notified. Workers to be moved away from the area
If asbestos is identified outside the exclusion area, raise find on asbestos register and map
Step 2: Is the material considered to be fibrous, powdery, friable or heavily degraded ACM?
Yes
Assume friable asbestos: Engage an LAA to assess and advise
Manage area in accordance with Steps 3 and 4 and any additional controls designated by LAA
No
Assume ACM (non-friable)
Step 3: If outside exclusion zone, site controller to cordon area off with bollards, signs and warning tape
Step 4: Site controller to wet impacted area down with a fine mist spray and cover impacted area with geotextile material or plastic sheeting and secure in place. Competent person engaged to conduct and inspection

# 6 REFERENCES


- National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended 2013.
- National Occupational Health and Safety Commission 2005, Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos.
- NSW DEC 2006, Guidelines for the NSW Site Auditor Scheme (2nd Edition).
- NSW EPA 2014, Waste Classification Guidelines.
- NSW EPA (2015), Guidelines on the Duty to Report Contamination under the Contaminated Land Management Act 1997.
- SafeWork Australia document How to Safely Remove Asbestos: Code of Practice 2016.
- SafeWork NSW 2011, Occupational Health and Safety Act (NSW).
- SafeWork NSW2017, Occupational Health and Safety Regulation (NSW).

# 7 LIMITATIONS

This Report is provided by WSP Australia Pty Limited (WSP) for Hayball (Client) in response to specific instructions from the Client and in accordance with WSP's proposal dated 05 March 2019 and agreement with the Client dated 11 March 2019 (Agreement).

**PERMITTED PURPOSE**

This Report is provided by WSP for the purpose described in the Agreement and no responsibility is accepted by WSP for the use of the Report in whole or in part, for any other purpose (Permitted Purpose).

**QUALIFICATIONS AND ASSUMPTIONS**

The services undertaken by WSP in preparing this Report were limited to those specifically detailed in the Report and are subject to the scope, qualifications, assumptions and limitations set out in the Report or otherwise communicated to the Client.

Except as otherwise stated in the Report and to the extent that statements, opinions, facts, conclusion and / or recommendations in the Report (Conclusions) are based in whole or in part on information provided by the Client and other parties identified in the report (Information), those Conclusions are based on assumptions by WSP of the reliability, adequacy, accuracy and completeness of the Information and have not been verified. WSP accepts no responsibility for the Information.

The Conclusions are reflective of the current Site conditions and cannot be regarded as absolute without further extensive intrusive investigations, outside the scope of the services set out in the Agreement and are indicative of the environmental condition of the Site at the time of preparing the Report. As a general principle, vertical and horizontal soil or groundwater conditions are not uniform. No monitoring, common or intrusive testing or sampling technique can eliminate the possibility that monitoring or testing results or samples taken, are not totally representative of soil and / or groundwater conditions encountered at the Site. It should also be recognised that Site conditions, including subsurface conditions can change with time due to the presence and concentration of contaminants, changing natural forces and man-made influences.

Within the limitations imposed by the scope of the services undertaken by WSP, the monitoring, testing (intrusive or otherwise), sampling for the preparation of this Report has been undertaken and performed in a professional manner in accordance with generally accepted practices, using a degree of skill and care ordinarily exercised by reputable environmental consultants under similar circumstances. No other warranty, expressed or implied, is made.

WSP has prepared the Report without regard to any special interest of any person other than the Client when undertaking the services described in the Agreement or in preparing the Report.

**USE AND RELIANCE**

This Report should be read in its entirety and must not be copied, distributed or referred to in part only. The Report must not be reproduced without the written approval of WSP. WSP will not be responsible for interpretations or conclusions drawn. This Report (or sections of the Report) should not be used as part of a specification for a project or for incorporation into any other document without the prior agreement of WSP.

WSP is not (and will not be) obliged to provide an update of this Report to include any event, circumstance, revised Information or any matter coming to WSP's attention after the date of this Report. Data reported and conclusions drawn are based solely on the information made available to WSP at the time of preparing the Report. The passage of time; unexpected variations in ground conditions; manifestations of latent conditions; or the impact of future events (including (without limitation) changes in policy, legislation, guidelines, scientific knowledge; and changes in interpretation of policy by statutory authorities); may require further investigation or subsequent re-evaluation of the Conclusions.

This Report can only be relied upon for the Permitted Purpose and may not be relied upon for any other purpose. The Report does not purport to recommend or induce a decision to make (or not make) any purchase, disposal, investment, divestment, financial

commitment or otherwise. It is the responsibility of the Client to accept (if the Client so chooses) the Conclusions and implement any recommendations in an appropriate, suitable and timely manner.

In the absence of express written consent of WSP, no responsibility is accepted by WSP for the use of the Report in whole or in part by any party other than the Client for any purpose whatsoever. Without the express written consent of WSP, any use which a third party makes of this Report or any reliance on (or decisions to be made) based on this Report is at the sole risk of those third parties without recourse to WSP. Third parties should make their own enquiries and obtain independent advice in relation to any matter dealt with or conclusions expressed in the Report.

**DISCLAIMER**

No warranty, undertaking or guarantee whether expressed or implied, is made with respect to the data reported or the conclusions drawn. To the fullest extent permitted at law, WSP, its related bodies, corporate and its officers, employees and agents assumes no responsibility and will not be liable to any third party for, or in relation to, any losses, damages or expenses (including any indirect, consequential or punitive losses or damages or any amounts for loss of profit, loss of revenue, loss of opportunity to earn profit, loss of production, loss of contract, increased operational costs, loss of business opportunity, site depredation costs, business interruption or economic loss) of any kind whatsoever, suffered or incurred by a third party.

# APPENDIX A

## FIGURES

**Legend**

Approximate site boundary

**Figure 1**
Site location

**Warwick Farms Public School**
Extent of Asbestos Impacted Soils

**Legend**

- Approximate site boundary
- Friable Asbestos Impacted Fill
- Non-Friable Asbestos Impacted Fill

**Figure 2**

# APPENDIX B

## ASBESTOS IN SOILS REGISTER – SITE AREA

## Warwick Farm PS Developable Area - Site Asbestos in Soils Register

| Hazard | Sample No/Test Pit | Description of Hazardous Material | Location of Hazardous Material | Friable | Consultant Comments | Remediation Date (where applicable) | Remediation Comments |
|---|---|---|---|---|---|---|---|
| Asbestos | Visual identification during assessments including TP31, TP33 and TP45 | Materials comprised non-friable asbestos containing materials including fibre cement sheeting fragments | The extent of the site excluding the friable asbestos impacted fill materials located at TP40 | Non-friable | Remediation works are to be performed in accordance with the RAP. | TBD | NA |
| Asbestos | Laboratory analysis following the submission of representative samples of TP40 | Asbestos in fill materials comprised AF/FA | The extent of the site encompassing TP40 | Friable | Remediation works are to be performed in accordance with the RAP. | TBD | NA |
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# Construction Environmental Management Plan
## Hutchinson Builders

### Mainsbridge School

### Appendix G: Traffic and Pedestrian Management Plan

# 1. PURPOSE

To address the requirements of the Development Consent in reference to a Construction Traffic and Pedestrian Management Plan for construction of the Mainsbridge School at the Warwick Farm Public School.

# 2. SCOPE

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

# 3. PROCEDURE

This Construction Traffic and Pedestrian Management Plan details how Hutchinson Builders will undertake works associated with the project in accordance with Local Council and Road and Maritime Authority requirements.

## 3.1 Transport Routes To and From Site

A Traffic Management Plan prepared by E.V.S Group in July 2019 ref: *Traffic Management Plan 249F14 E.V.S Group July 2019*, has identified the following traffic routes.

**Access**

Construction Vehicles are to approach as follows:

Vehicles are to approach along The Hume Highway turning left or right into Homepride Avenue heading North and then turning right into Lawrence Hargrave Road, then turning left onto Williamson Crescent, and then turning right to enter the construction site.

**Egress**

Vehicles are to leave the Construction Site turning left onto Williamson Crescent, turning right onto Lawrence Hargrave Road, turning left onto Homepride Avenue and then turning left or right onto The Hume Highway to disperse to their intended destination.

Refer to Attachment A for the E.V.S Group Traffic Management Plan.

## 3.2 Project Vehicle Speeds

Vehicles speeds will be dictated by the speed restrictions placed on the road network within the vicinity of the project. A 10km speed restriction will be applied to vehicles whist travelling on the project site.

## 3.3 Safety Risks Associated with Project Vehicles

A risk assessment has been undertaken to identify the safety risks associated with project vehicles and control measures to be used in mitigating these risks. Refer to the Environmental Work Method Statement in Appendix C of the CEMP.

## 3.4 Community Notification

Notification to local residents regarding construction activities that may impact local roads will occur in accordance with section 5.5 of the CEMP regarding Community Consultation.

## 3.5 Road and Lane Closures

The E.V.S Traffic Management Plan has not identified the necessity for lane or road closures for the project. Where road or lane closures are required, as part of the project works, consultation will be conducted with the road authority (Local Council / RMS) and a Road Occupancy Licence (ROL) will be sought. Currently, there is no requirement for ROL for this proposed construction. Community consultation regarding road and lane closures will occur in accordance with the CEMP.

Any road or lane closure including any traffic control devices required will be detailed on site specific Traffic Control Plans (TCP's) prepared by an accredited Engineer in accordance with RMS Manual 'Traffic Control at Worksites'.

### 3.6 Driver Code of Conduct

General requirements for the Driver code of conduct include the following:

- Hold a valid driver's licence for the class of vehicle that the driver is operating;
- Operate the vehicle in a safe manner within and external to the site;
- Comply with the direction of authorised site personnel when within the site;
- Adhere to the speed limit identified in Section 3.2;
- Heavy vehicle drivers are to minimise compression breaking when driving with residential areas adjacent the site;
- Heavy vehicle drivers are to be aware of their adopted fatigue management scheme and operate within its requirements;
- Vehicles waiting to enter the site, are to wait with engines off;
- All vehicles are expected to be covered with material/canopy, whether or not the vehicle is loaded;
- When vehicles are loaded hazardous loads, such as asbestos or lead waste, drivers are to follow directions on site and remain in the cabin with the windows closed and air-conditioning is on recirculated.

### 3.7 Traffic Management Measures

The following measures will be implemented where possible to minimise impacts from construction traffic on the surrounding road network:

- Heavy vehicle movements would be kept to a minimum during school zone hours and morning peak hours to maximise safety and reduce congestion;
- No unnecessary idling of vehicles;
- Pedestrians would be kept clear of worksites at all times;
- The project has been sited to avoid direct impacts on residential and business access;
- Consultation would occur with any affected property owners and occupiers to coordinate disruptions to driveway access;
- The construction program will consider Endeavour Energy and TransGrid maintenance and access requirements;
- Traffic controller(s) will be employed to control traffic flows, reduce public nuisance and prevent accident or injury where required;
- Minimise vehicle movements during 'pick up' and 'drop off' times at local school, where applicable to construction traffic route;
- Speed restrictions for construction vehicles will be applied on site and on local roadways to prevent accidents; and
- Implement car-pooling for site personnel to reduce parking spaces required and traffic loads.

It is expected that there will be no requirement to divert pedestrian access. Isolated instances may occur when pedestrians may be stopped for short periods while construction vehicles enter and exit the driver ways under a Traffic Controller guidance.

### 3.8 Community Consultation

The following phases of the community engagement has been undertaken at the time of writing this plan (25/06/2019):

1) Site Office with the Assistant Principal, teacher representative, SINSW and Head Contractor - 06/06/19
2) Meeting with Parent and Teachers before school with SINSW Community engagement member – 19/06/19
3) Presentation to Parents (Warwick Farm PS and Liverpool Council Childcare Centre) and teachers at their coffee club – 19/06/19
4) Letterbox drop, and door knock with Warwick Farm residents – 19/06/19

Further proposed community engagement strategies proposed include the following:

1) Buildability workshop with the Warwick Farm Principal and Project team – 26/06/19
2) Meeting with the Manager of Liverpool Council Childcare Centre – 26/06/19

All community engagement works have been completed as provided in Section 5.5 of this CEMP. Complaints will be managed under Section 5.6 of this CEMP.

### 3.9 Consultation with Local Council

Following consultation with the City of Liverpool Council the following conclusions were made:

1) Williamson Crescent's crossover into the site is a distance from Warwick Farm's Kiss and Drop Zone. Approximately 70m from the southern general entrance and 100m from the heavy vehicle access.
2) Deliveries are outside of school hours. School operating hours are 8:30am to 3pm.
3) Additional trade vehicles are to park approximately 2 streets away (west) from the site.

Refer to Attachment C for consultation with council.

### 3.10 Consultation with RMS

RMS was notified of the first version of this plan via email. A response from the appropriate RMS agent has not been received.

### 3.11 Plan Review

Hutchinson Builders will conduct a formal review of this Traffic and Pedestrian Management Plan at a minimum of three 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; and
- Complaint registers.

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

# Traffic and Pedestrian Management Plan

## Hutchinson Builders

### Mainsbridge School

### Attachment A: Traffic Management Plan

# HUTCHINSON BUILDERS

## Warwick Farm Public School Williamson Crescent Warwick Farm

## TRAFFIC MANAGEMENT PLAN
## U.B.D Ref 249 F14

## July 2019

**CONTROL SHEET – SUMMARY UPDATES**

1. Insert new or revised sheets into the section of the TMP and remove/destroy any superseded sheets
2. Record revision, date and brief description immediately after the TMP is updated
3.

| Revision | Date | Brief description of update |
|---|---|---|
| 0/1 | July 2019 | Initial Submission |
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## 1.0 INTRODUCTION

The Project located at Warwick Farm Public School Williamson Crescent Warwick Farm comprises of the construction of new school amenities. The construction site is located on the Eastern side of Williamson Crescent at Warwick Farm.

The Traffic Management plan addresses the conditions, approval requirements for this project, as well as the construction works proposed by Hutchinson Builders.

The objective of the plan is to ensure that the traffic issues and the construction movement of both plant and equipment are managed with minimal impact to motorists, pedestrians and local residents and complies with the requirements of all relevant authorities including RMS, Liverpool City Council and the Emergency Services.

Through a consultative approach between Hutchinson Builders and E.V.S Group, this plan details the best way to manage traffic issues associated with this project.

## 1.1 PURPOSE

The purpose of the Traffic Management Plan is to ensure that the planned works adhere to and comply with the Authority requirements for the Control of movement of construction vehicles (Plant & Equipment) around the Project and adjacent transport corridors. Specifically, this plan must recognize, be consistent with and comply with the traffic configuration of the local road network as it exists at varying stages, during the project.

In addition to the Authority requirements, this plan must also comply with:

- The requirements of relevant authorities, including RMS, Liverpool City Council, NSW Police and State Emergency Services:
- Road Act 1993 (NSW) and all other legislative requirements;
- Certificates, licenses, consents, permits and approvals, including in respect of working hours;

This plan will provide:

- Detailed traffic management procedures for the site;
- Traffic control plan detailing modification to existing traffic patterns vehicular and pedestrians. (Attached)
- Ensure the appropriate notification of relevant emergency services prior to implementing road and pedestrian traffic modifications;
- Safety of Pedestrians, Commuters, Cyclists and personnel of both Hutchinson Builders Properties and its sub contractors;
- Impacts on residents and/or commercial enterprises on traffic routes (including traffic movement);
- Objectives for Material delivery management & transportation to and from site;
- Roles and responsibilities of personnel and sub contractors;
- Updating of the Traffic Management plan on an as needs basis;

## 1.2 SCOPE OF WORK

The main element of the work in respect to traffic management is;

- Traffic Management while Construction Vehicles are entering and exiting the work zones;
- Control of movement of vehicles carrying construction plant/equipment around the Project and adjacent traffic corridors;
- Plan must recognize, be consistent with and comply with the traffic configuration of the local road network as it exists at varying stages, during the project;

## 1.3 APPLICATION

All delivery drivers and sub contractors of Hutchinson Builders Properties shall comply with the requirements of this plan.

## 1.4 ABBREVIATIONS & TERMINOLOGY

The following terms, abbreviations and definitions are used in this Plan;

| Terms | Explanation |
|---|---|
| TMP/Plan | Traffic Management Plan |
| VMP | Vehicle Movement Plan |
| PMP | Pedestrian Movement Plan |
| JPM | Junior Project Manager |
| RMS | Roads and Maritime Services |
| TMC | Road and Maritime Services Traffic Management Centre |
| LCC | Liverpool City Council |
| | |
| | |

## 2.0 DISTRIBUTION CONTROL & APPROVAL OF THIS PLAN

### 2.1 Approval & Changes

**Approval of Plan**

Record of Issue, Review and Approval of plan will be via LCC and Hutchinson Builders.

**Issue of Plan**

Hutchinson Builders Site Manager will ensure the Approved Plan is available to all personnel.

The most current version of the plan was issued at Tender and forms part of the sub contractors contract documentation.

Copies of the TMP and TCP's are available from the site office.

Laminated copies of the TCP's will be placed on the walls of the induction room.

**Changes to the TMP**

No changes to this TMP are permitted with any changes to be provided in a new TMP to be approved by LCC.

**Distribution Policy**

Controlled copy of the TMP is held by Hutchinson Builders. All company employees have access to this plan through the Site Manager. The list of holders of controlled copies of the plan includes;

| COPY NO | ISSUED TO | ISSUE DATE | ISSUED BY |
|---|---|---|---|
| 01 | Project Manager | 01/07/2019 | E.V.S Group |
| 02 | Site Manger | 01/07/2019 | E.V.S. Group |
| 03 | Cadet | 01/07/2019 | E.V.S. Group |
| 04 | | | |
| 05 | | | |
| 06 | | | |

The personnel to whom these copies have been issued will be sent amendments as they occur, and it is their responsibility to discard superseded pages and insert new pages.

**Uncontrolled Copies**

Uncontrolled copies will now be issued amendments.

Acknowledgement of receipt

If a controlled copy of the Traffic Management Plan has been issued, acknowledgement of its receipt is to be sent to the Site Manager within seven days to ensure further amendments are received.

## 3.0 CONDITIONS OF APPROVED RESPONSE

The checklist detailing the verification process to ensure contract requirements have been met in this Traffic Management Plan for the Conditions of Approval listed below:

| CONDITIONS OF APPROVAL | WHERE ADDRESSED |
|---|---|
| Traffic Management Plan (TMP) has been prepared in consultation with relevant Hutchinson Builders personnel. The TMP must include information on the following matters relating to the project:<br>a) Including the staging of construction works to minimize traffic and pedestrian delays | All Sections |
| b) The impact on pedestrians including measures to ensure safety to pedestrians at all times; | Section 4.3 |
| c) Maximum and average truck volumes | Section 4.3 |
| d) Truck ingress and egress routes | Section 4.3 |
| e) Access, for construction vehicles entering and leaving work area; | Section 4.3 |
| f) No heavy vehicle queuing on public roads unless otherwise agreed by the LCC and/or the RMS | Section 4.2 |
| g) Construction traffic generation | Section 4.3 |
| h) A response plan which sets out the proposed response to any traffic, construction or other incident. | Section 4.1 |
| i) Proposed traffic control within Traffic Control Plan | ATTACHED |
| j) Measures to manage traffic flows around the area affected by the Project, including as required traffic control devices necessary for the implementation of the TCP's. | Section 4.1 |
| The performance of all project traffic arrangements must be Monitored during construction.<br>Any additional traffic and transport management measures as Required by the RMS shall form part of the TMP. | |

## 4.0 STAGING PLANS, PROPOSED SEQUENCE OF WORKS

The Work Area listed below, itemize on site activity (in relation to proposed works) and relate to Traffic Control sequences.

### 4.1 WORK AREA – Warwick Farm Public School Williamson Crescent Warwick Farm

| Date | Area | Activity |
|---|---|---|
| 01/07/2019 | WA1 | Demolition & Excavation & Construction |

## 5.0 PROPROSED PROGRAMME

The approximate program for implementation of the work area is as follows:

| WORK AREA | START DATE | FINISH DATE |
|---|---|---|
| **Work Area 1** | **July 2019** | **October 2020** |

### 5.1 Managing Cumulative Impacts

Spoil from Demolition and Excavation shall be loaded entirely within the site boundaries. There is no queuing on Williamson Crescent or any other surrounding roads. All deliveries will be unloaded from within the confines of the Construction Zone. Any large deliveries will need to be organized in advance to reduce any cumulative congestion impacts attributed to traffic.

The site manager is responsible for monitoring traffic conditions. In the event that construction traffic impacts do have a negative impact on the road network, Hutchinson Builders Properties shall liaise with LCC to solve the problem.

### 5.2 Work Area Assessment and Impacts

This section details the requirements for the Construction Site.

Williamson Crescent is a 2 lane 2 way road consisting of 2 through lanes. The speed limit on Russell Avenue is 50Km/h and it runs in an East - West direction.

There is no offsite parking for construction vehicles. Sub contractors are to be advised that they should utilize public transport wherever possible. Hutchinson Builders will be required to allow for sub contractor parking within the site boundaries.

There will not be a works zones on Williamson Crescent with all construction deliveries being loaded and unloaded entirely from within the work site. All spoil from Demolition and excavation is to be loaded entirely within the site boundaries. All concrete pours will be completed from within the construction site.

Construction vehicles are not to reverse into site during the works. There will need to be traffic control present as per the attached TCP's. The proposed works will generate additional truck movements along the main access routes.

### 5.3 WORK AREA – ACCESS & EGRESS FOR CONTRUCTION VEHICLES

**Access**

Construction Vehicles are to approach as follows:

Vehicles are to approach along The Hume Highway turning left or right into Homepride Avenue heading North and then turning right into Lawrence Hargrave Road, then turning left onto Williamson Crescent, and then turning right to enter the construction site (as per VMP).

**Egress**

Vehicles are to leave the Construction Site turning left onto Williamson Crescent, turning right onto Lawrence Hargrave Road, turning left onto Homepride Avenue and then turning left or right onto The Hume Highway to disperse to their intended destination (as per VMP).

**Truck Volumes**

General Construction Vehicle Volume is expected to be approximately 10 movements per day for the Demolition and Excavation stages with up to 10 movements per day for the Construction Stage. The largest concrete pour will require approximately 25 concrete deliveries.

**Traffic Diversions**

There will be no need for traffic diversions for this project. The road must be fully opened to the public when works are completed at the end of each day.

No heavy vehicle queuing on public roads is allowed unless approved by the RMS and LCC. The Site Manager will provide strict instruction to all drivers during toolbox meetings and inductions.

**Impact on Public Transport**

No impact is expected on public transport. There is a School Bus Route in Russell Avenue, however the planned works will have no effect on the bus stop and bus routes will not be affected.

**Pedestrians/Road Closures**

Pedestrians will not be required to divert on Williamson Crescent as per attached TCPs, there may be isolated instances where they will be required to stop for short periods while construction vehicles enter and exit the driveways under Traffic Controller guidance.

**Traffic Control Requirements**

All site access, egress and unloading zones will require traffic control in accordance with the Roads and Traffic Authority Guideline Traffic Control at Work Sites, and Australian Standards 1742.3 Manual of Uniform Traffic Control Devices, Part 3: Traffic Control Devices for works on Roads.

The main access, egress and unloading points for these works are via council or RMS roads. Safe and simple traffic control for all road users shall be provided at all site access points in accordance with standard requirements.
(Refer to 5.2)

## 6.0 OTHER TMP REQUIREMENTS

### 6.1 Provisions for other users

TCP's must cater for all users affected by the Construction at Warwick Farm Public School Williamson Crescent Warwick Farm. These users include but are not limited to cyclists and emergency vehicles.

### 6.2 Hours of Operation

The hours of Operation for General Construction will be:

| | |
|---|---|
| Monday to Friday | 07.00am – 18.00pm |
| Saturday | 08.00am – 13.00pm |
| Sunday & Public Holidays | No Work Permitted |

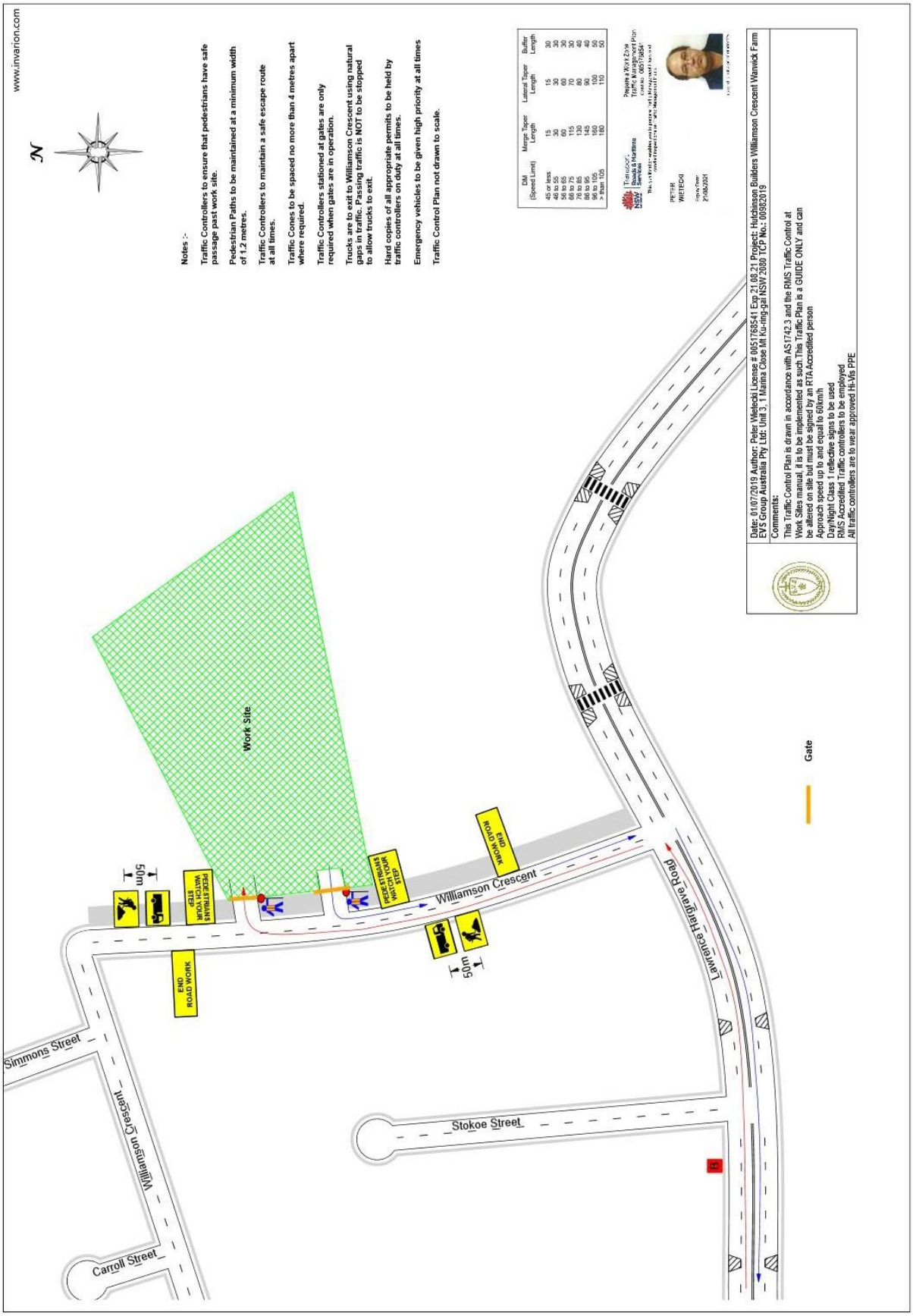
This TMP is based on the information that was obtained from numerous sources.

This plan is presented by Peter Wietecki RMS Cert # 0051768541 on behalf of E.V.S Group

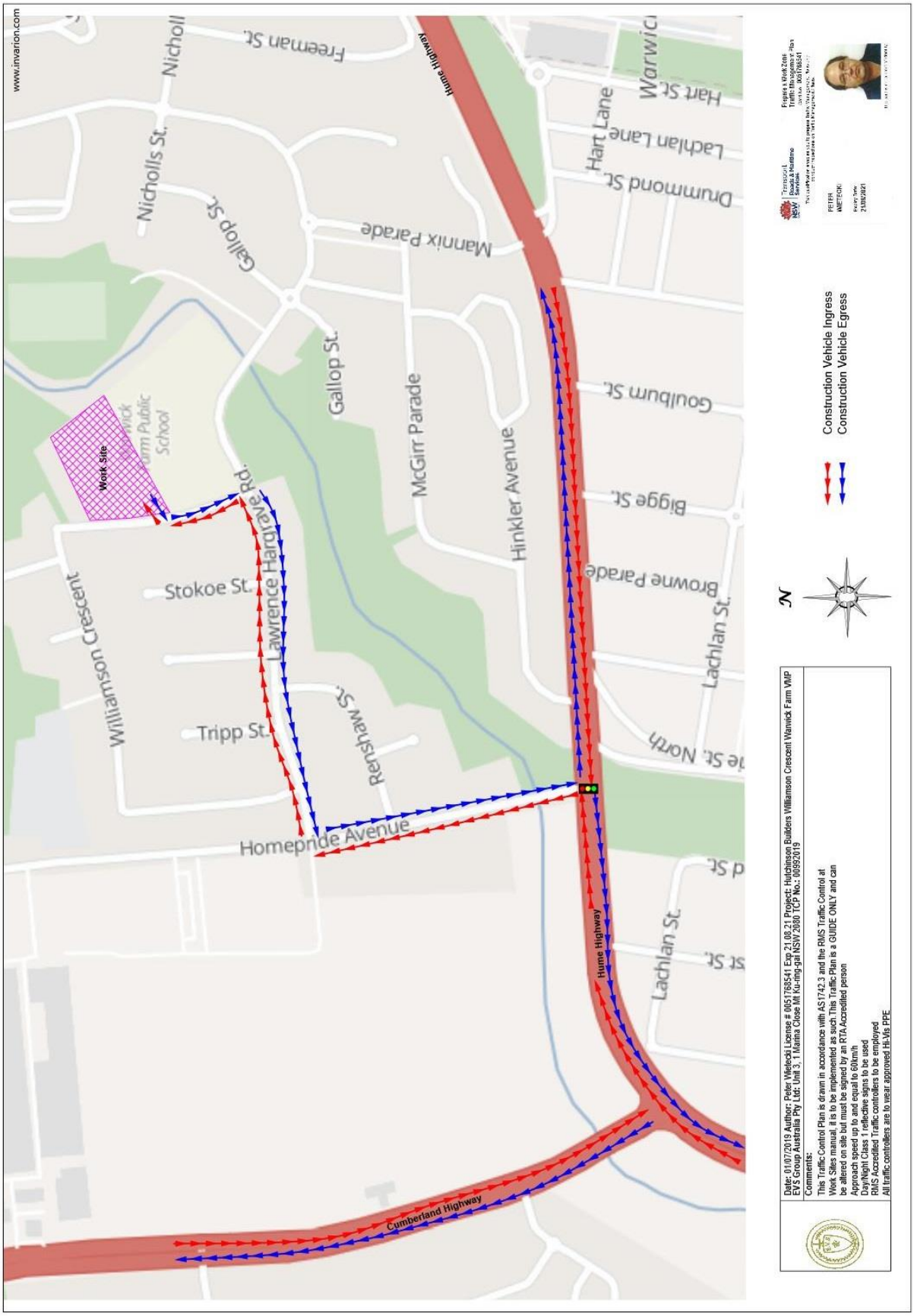
*Peter Wietecki*

**Peter Wietecki**
**Works Supervisor**
**E.V.S. Group**

# TRAFFIC MANAGEMENT PLAN



# TRAFFIC MANAGEMENT PLAN



# Traffic and Pedestrian Management Plan

## Hutchinson Builders

### Mainsbridge School

### Attachment B: Staging Plan, On-Site Traffic Routes and Parking

*Figure 1: Stage 1B Layout*

*Figure 2: Stage 1C Layout*

*Figure 3: Stage 1D Layout*

*Figure 4: Stage 2 Layout*

# Traffic and Pedestrian Management Plan
## Hutchinson Builders

### Mainsbridge School

### Attachment C: Consultation with Regulatory Bodies

## Alex Chaplin

**From:** Melissa Stojanovic <Melissa.Stojanovic@ghd.com>
**Sent:** Thursday, 20 June 2019 12:47 PM
**To:** Phil Ho
**Cc:** John Tu
**Subject:** RE: 25940_95 Lawrence Hargrave Road Warwick Farm_SSD 8792_Condition B20(b)

Hi Phil,

We confirm that consultation has occurred with the school and community. This aligns with our community engagement strategy as approved by the DPE 10/05/19.

We outline these events below:

1) Site Office with the Assistant Principal, teacher representative, SINSW and Head Contractor - 06/06/19
2) Meeting with Parent and teachers before school with SINSW Community engagement member – 19/06/19
3) Presentation to Parents (Warwick Farm PS and Liverpool Council childcare centre) and teachers at their coffee club – 19/06/19
4) Letterbox drop and door knock with Warwick Farm residents – 19/06/19

Next week:

1) Buildability workshop with the Warwick Farm Principal and Project team – 26/06/19
2) Meeting with the Manager of Liverpool Council Childcare Centre – 26/06/19

Spoke with Rachel from Liverpool council today (20/06/19) who inquired with Warwick Farm school (18/06/19) regarding the change of traffic. She mentioned Mahavir is her colleague and they are working together on this project.

We advised that:

1) Williamson crescent's crossover into the site is a distance from Warwick Farm's Kiss and Drop Zone. Discussed whilst using google-maps.
2) Deliveries are outside of school hours. School operating hours will be included in the CEMP and considered.
3) Additional trade vehicles are to park approximately 2 streets away (west) from the site and that this would be provided on a site-map in the updated CEMP. A letterbox drop has occurred advising residents of the potential construction traffic.

Please let me know if this is accepted and can be included in the Traffic Management plan.

Thank you,
Melissa

---

**From:** Phil Ho <Phil.Ho@hutchinsonbuilders.com.au>
**Sent:** Wednesday, 19 June 2019 5:00 PM
**To:** Melissa Stojanovic <Melissa.Stojanovic@ghd.com>
**Cc:** John Tu <John.Tu@ghd.com>
**Subject:** FW: 25940_95 Lawrence Hargrave Road Warwick Farm_SSD 8792_Condition B20(b)

Melissa

A response from Liverpool council below.

Can you refer to Item 6, has GHD done any previous consultation with the school on this?

Should you have any questions, please do not hesitate to contact me.

Regards,

**Phil Ho**
Project Manager

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**E** phil.ho@hutchies.com.au
**A** 23 DUNNING AVE, ROSEBERY NSW 2018 NSW

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**From:** Mahavir Arya [mailto:AryaM@liverpool.nsw.gov.au]
**Sent:** Wednesday, 19 June 2019 1:44 PM
**To:** Phil Ho
**Cc:** Charles Wiafe
**Subject:** FW: 25940_95 Lawrence Hargrave Road Warwick Farm_SSD 8792_Condition B20(b)

Hi Phil

Thanks for providing a copy of Traffic and Pedestrian Management Plan (TPMP) for Council comments.

Please update the plan to include the following for Council review and comments.

1. Location of the proposed worksite and proposed work access.
2. Access route of heavy vehicles.
3. Location of work vehicle parking within the worksite.
4. Future requirements of road occupancies and works zone for using the existing road reservation for the proposed works.
5. Copies of proposed traffic control plans, if any.
6. Consultation with the school.

The submitted document is incomplete as it has reference to other sections of the report which was not provided.

Please contact me should you be having any further questions.

Regards

**Mahavir Arya**
Traffic & Transport Engineer

LIVERPOOL CITY COUNCIL | LIVERPOOL THE GREAT SOUTH WEST

02 8711 7592 | | AryaM@liverpool.nsw.gov.au | www.liverpool.nsw.gov.au
Customer Service: 1300 36 2170 | 33 Moore Street Liverpool, NSW 2170, Australia

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Order of Liverpool Award nominations close 23 July

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On 4 June 2019 7:45 am, Phil Ho wrote:

Attention: Planning & Transport team

In regards to SSD8792 for 95 Lawrence Hargrave Road Warwick Farm, as per Condition B20(b), please find attached Traffic and Pedestrian Management Plan for your comment.

Should you have any questions, please do no hesitate to contact me.

Regards,

**Phil Ho**
Project Manager

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**E** phil.ho@hutchies.com.au
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Regards

Charles Wiafe

**Service Manager – Traffic and Transport**

33 Moore Street, Liverpool NSW 2170
**P:** 8711 7452 **E:**wiafec@liverpool.nsw.gov.au | **W:** www.liverpool.nsw.gov.au

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## Alex Chaplin

**From:** Mahavir Arya <AryaM@liverpool.nsw.gov.au>
**Sent:** Wednesday, 19 June 2019 1:44 PM
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5. Copies of proposed traffic control plans, if any.
6. Consultation with the school.

The submitted document is incomplete as it has reference to other sections of the report which was not provided.

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Regards

**Mahavir Arya**
Traffic & Transport Engineer

LIVERPOOL CITY COUNCIL | LIVERPOOL THE GREAT SOUTH WEST

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Regards,

**Phil Ho**
Project Manager

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Regards

Charles Wiafe

**Service Manager – Traffic and Transport**

33 Moore Street, Liverpool NSW 2170
**P:** 8711 7452 **E:**wiafec@liverpool.nsw.gov.au | **W:** www.liverpool.nsw.gov.au

## Alex Chaplin

**From:** Phil Ho <Phil.Ho@hutchinsonbuilders.com.au>
**Sent:** Monday, 1 July 2019 11:59 AM
**To:** Anushiya Mohandas
**Subject:** RE: MAINSBRIDGE SCHOOL FOR SPECIFIC PURPOSES – Traffic & Pedestrian Plan

Hi Anushiya

Thanks for your reply.

No I didn't receive any further communication.

Are you now able to assist?

Should you have any questions, please do not hesitate to contact me.

Regards,

**Phil Ho**
Project Manager

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**E** phil.ho@hutchies.com.au
**A** 23 DUNNING AVE, ROSEBERY NSW 2018 NSW

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**From:** Anushiya Mohandas [mailto:Anushiya.MOHANDAS@rms.nsw.gov.au]
**Sent:** Monday, 1 July 2019 11:49 AM
**To:** Phil Ho
**Subject:** RE: MAINSBRIDGE SCHOOL FOR SPECIFIC PURPOSES – Traffic & Pedestrian Plan

Hi Phil,
Did someone from RMS contact you regarding this matter?

Sorry I referred this to my colleagues prior to going on my leave and now he is gone on his paternity leave.

Regards,
Anu

**Anushiya Mohandas**
Network & Safety Officer (Mon, Tues and Wed)
North West Precinct
Greater Sydney Division

**T** 02 8849 2713 **M** 04 3770 6745
www.rms.nsw.gov.au
***Every journey matters***

**From:** Phil Ho [mailto:Phil.Ho@hutchinsonbuilders.com.au]
**Sent:** Thursday, 27 June 2019 4:03 PM
**To:** Sharon Verhoeven
**Cc:** Anushiya Mohandas
**Subject:** RE: MAINSBRIDGE SCHOOL FOR SPECIFIC PURPOSES – Traffic & Pedestrian Plan

Hi Sharon

Referring email below, is there a direct contact from the Network Safety Team I can discuss my plan with?

Should you have any questions, please do not hesitate to contact me.

Regards,

**Phil Ho**
Project Manager

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**E** phil.ho@hutchies.com.au
**A** 23 DUNNING AVE, ROSEBERY NSW 2018 NSW

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**From:** Phil Ho
**Sent:** Monday, 17 June 2019 7:20 AM
**To:** 'Sharon Verhoeven'
**Cc:** Anushiya Mohandas
**Subject:** RE: MAINSBRIDGE SCHOOL FOR SPECIFIC PURPOSES – Traffic & Pedestrian Plan

Thanks Sharon

Is there a direct contact from the Network Safety Team I can discuss it with?

Should you have any questions, please do not hesitate to contact me.

Regards,

**Phil Ho**
Project Manager

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**E** phil.ho@hutchies.com.au
**A** 23 DUNNING AVE, ROSEBERY NSW 2018 NSW

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**From:** Sharon Verhoeven [mailto:Sharon.VERHOEVEN@rms.nsw.gov.au]
**Sent:** Friday, 14 June 2019 11:57 AM
**To:** Phil Ho

**Cc:** Anushiya Mohandas
**Subject:** RE: MAINSBRIDGE SCHOOL FOR SPECIFIC PURPOSES – Traffic & Pedestrian Plan
**Importance:** High

Hi Phil

I have forwarded your email to the Network Safety Team.

Kind regards
Sharon

---

**From:** Phil Ho [mailto:Phil.Ho@hutchinsonbuilders.com.au]
**Sent:** Thursday, 13 June 2019 10:53 AM
**To:** Development Sydney
**Subject:** RE: MAINSBRIDGE SCHOOL FOR SPECIFIC PURPOSES – Traffic & Pedestrian Plan

Hi There

Has anyone been able to review this report for comment?

Should you have any questions, please do not hesitate to contact me.

Regards,

**Phil Ho**
Project Manager

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**E** phil.ho@hutchies.com.au
**A** 23 DUNNING AVE, ROSEBERY NSW 2018 NSW

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**From:** Phil Ho
**Sent:** Tuesday, 4 June 2019 7:41 AM
**To:** 'development.sydney@rms.nsw.gov.au'
**Subject:** MAINSBRIDGE SCHOOL FOR SPECIFIC PURPOSES – Traffic & Pedestrian Plan

Attention: Malgy Coman

Hi There,

In regards to the project at Mainsbridge School for Specific Purposes at 95 Lawrence Hargrave Rd Warwick farm (ref: SYD17/01351/02 (A21784985)) please find attached Traffic and Pedestrian Management Plan for your comment.

Should you have any questions, please do no hesitate to contact me.

Regards,

**Phil Ho**
Project Manager

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**E** phil.ho@hutchies.com.au
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# Construction Environmental Management Plan
## Hutchinson Builders

### Mainsbridge School

### Appendix H: Weed Management Plan

# 1. PURPOSE

To address the requirements of the Development Consent in reference to a Construction Environmental Management Plan for construction of the Mainsbridge School at the Warwick Farm Public School.

# 2. SCOPE

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

# 3. PROCEDURE

This Noxious Weed Management Protocol details how Hutchinson Builders will undertake works associated with the Project in accordance with the requirements of the Development Consent.

## 3.1 Noxious Weeds Identification

There are 24 plant species that are listed as weeds within 1km of the site identified under the *Environment Protection and Biodiversity Conservation Act 1999*. Noxious weeds have been detailed for ease of identification in Appendix A of this protocol.

## 3.2 Noxious Weeds Classification

In accordance with the Noxious Weeds Act 1993, noxious weeds identified with the project area will be treated in accordance with the following requirements.

| Class | Characteristics | Example Control Requirements |
|---|---|---|
| **Class 1**: State Prohibited Weeds | Plants that pose a potentially serious threat to primary production or the environment and are not present in the State or are present only to a limited extent. | The plant must be eradicated from the land and the land must be kept free of the plant.<br>The weeds are also "notifiable" and a range of restrictions on their sale and movement exist. |
| **Class 2**: Regionally Prohibited Weeds | Plants that pose a potentially serious threat to primary production or the environment of a region to which the order applies and are not present in the region or are present only to a limited extent. | The plant must be eradicated from the land and the land must be kept free of the plant.<br>The weeds are also "notifiable" and a range of restrictions on their sale and movement exist. |
| **Class 3**: Regionally Controlled Weeds | Plants that pose a serious threat to primary production or the environment of an area to which the order applies, are not widely distributed in the area and are likely to spread in the area or to another area. | The plant must be fully and continuously suppressed and destroyed. |
| **Class 4**: Locally Controlled Weeds | Plants that pose a threat to primary production, the environment or human health, are widely distributed in an area to | The growth of the plant must be managed in a manner that reduces its numbers spread and incidence and continuously inhibits its reproduction and the plant must |

| Class | Characteristics | Example Control Requirements |
|---|---|---|
| | which the order applies and are likely to spread in the area or to another area. | not be sold propagated or knowingly distributed |
| **Class 5**: Restricted Plants | Plants that are likely, by their sale or the sale of their seeds or movement within the State or an area of the State, to spread in the State or outside the State. | There are no requirements to control existing plants of Class 5 weeds. However, the weeds are "notifiable" and a range of restrictions on their sale and movement exists. |

### 3.3 Noxious Weeds Control Measures

The following measures will be implemented where applicable to ensure efficient control and minimise weed spread:

- Weed control will be carried out prior to and during the construction phase to ensure the spread of weeds and their associated seeds are contained / controlled so they do not contaminate or impact the works, including stockpile areas and the surrounding environment.
- Prior to entering the project alignment, the work area will be inspected to confirm the presence of noxious weeds. Where noxious weeds are identified with in the construction corridor, weeds will be removed to the extent necessary, placed in a separate waste receptacle and covered to prevent seed spread.
- All noxious weeds that are cleared as part of the project will be segregated from non-weed species and disposed of to a licenced waste facility.
- Inspection/maintenance procedures will be undertaken to reduce the carriage of weed material on machinery.
- The introduction or spread of weed species on site will be minimised by avoiding introducing fill to the Project site and washing equipment and machinery before leaving a site and entering a new site.

### 3.4 Inspection and Monitoring

Potential weeds to be encountered during the project are included in Appendix A – Expected Weeds and Identification, of this document. These weeds will be removed, using the methods stated in these plans, both prior to and during the construction phase. The entire works area, including the stockpile areas, will be monitored regularly to ensure weeds that have been removed do not return throughput the construction phase and during the 24 months monitoring period.

All plant, equipment and vehicles accessing and exiting the project site will be inspected to ensure soil, vegetative material or other material has been removed. Construction plant and vehicles working in areas identified as containing noxious weeds will be thoroughly washed down prior to leaving the immediate site. Monitoring will be recorded on the waste management log sheet and weekly environmental inspection report.

| Appendix A: Expected Weeds and Identification | | | | |
|---|---|---|---|---|
| **Species** | **Status** | **Required treatment** | **Potential location** | **Identification** |
| **Alligator Weed**<br>*Alternanthera Philoxeroides* | Weed of National Status (WONS)<br><br>Class 2 | Low – high volume spot spray, dependant on occurrence of large weed mass and proximity to native vegetation. | Seasonal flood ways, creeks, drainage canals and has been identified in the Georges River. | |
| **Madeira Vine**<br>*Anredera Cordifolia* | WONS | Physical removal – remove all vine parts, underground tubers and climbing vines.<br><br>Cut back top growth and spray 2 metre stems with herbicides. | Bushlands, waste areas, gardens, parks, roadsides and waterways. | |
| **Asparagus Fern**<br>*Asparagus Aethiopicus* | WONS<br><br>Class 3 | Physical removal – remove all parts, rhizomes and tubers.<br><br>Spot spray or brush with herbicides for large infestations. | Scattered | |

| Appendix A: Expected Weeds and Identification | | | | |
|---|---|---|---|---|
| **Species** | **Status** | **Required treatment** | **Potential location** | **Identification** |
| **Bridal Creeper**<br>*Asparagus Asparagoides* | WONS<br>Class 2 | Application of herbicides away from native species or spot sparing of herbicides to fresh cut lower limbs. | Along roadsides, waste places, scrubland, riparian vegetation areas and lowland grassy areas. | |
| **Cabomba**<br>*Cabomba Caroliniana* | WONS<br>Class 2 | Physical cutting and removing from land accessible areas. | Within aquatic environments. | |
| **Boneseed**<br>*Chrysanthemoides Monilifera Subsp. Monilifera* | WONS<br>Class 3 | Shrub areas. | Scattered. | |

| Appendix A: Expected Weeds and Identification | | | | |
|---|---|---|---|---|
| **Species** | **Status** | **Required treatment** | **Potential location** | **Identification** |
| **English Broom**<br>*Cytisus Scoparius* | WONS<br>Class 4 | Hand weeding and hoeing for small isolated plants.<br>Bulldozing for large infestations.<br>Cut and paint with herbicides. | Roadsides and edges of bushland. | |
| **Water Hyacinth**<br>*Eichhornia Crassipes* | WONS<br>Class 2 | Remove by hand and harvest machine removal for larger infestations.<br>Use of herbicides with local council approval. | Within aquatic environments. | |
| **Cape Broom**<br>*Genista Monspessulana* | WONS<br>Class 2 | Hand removal of smaller plants.<br>Cut and paint of larger plants with herbicides | Small gardens, disturbed areas such as roadsides, fence lines, creek margins and poorly managed pastures, and disturbed bushland. | |

| Appendix A: Expected Weeds and Identification | | | | |
|---|---|---|---|---|
| **Species** | **Status** | **Required treatment** | **Potential location** | **Identification** |
| **Lantana**<br>*Lantana Camera* | WONS<br>Class 2 | Combination of herbicides, mechanical removal, biological control and revegetation. | Disturbed sites such as roadsides, cultivated | |
| **African Boxthorn**<br>*Lycium ferocissimum* | WONS<br>Class 2 | Herbicides can be applied as foliar sprays when the plants are actively growing, spraying around the base of stems to a height of 30-40 cm above ground level or cutting each stem off at ground level and immediately applying herbicide to the cut surface. Where there are no native plants to be affected, a residual herbicide can be applied to the soil between the base of the plant and the drip-line, usually when the soil is wet or rain is expected | Creek-beds, fence-lines and roadsides. | |
| **Chilean Needle Grass**<br>*Nassella neesiana* | WONS<br>Class 3 | Removal by hand or chipping. | Scattered. | |

| Appendix A: Expected Weeds and Identification | | | | |
|---|---|---|---|---|
| **Species** | **Status** | **Required treatment** | **Potential location** | **Identification** |
| **Serrated Tussock**<br>*Nassella trichotoma* | WONS<br>Class 3 | Spot spraying with a registered herbicide or chipping with a mattock. | Scattered. | |
| **Prickly pear**<br>*Opuntia spp.* | WONS<br>Class 4 | Hand weeding – Hand-removal of plants, fruit and root systems | Scattered | |
| **Blackberry**<br>*Rubus Fruticosis Aggregate* | WONS<br>Class 3 | Burning, slashing, grazing, grubbing, chemical spraying and biological control. The chosen program it will need to be planned and sustained over a number of years to prevent re-infestation. | Scattered | |

| Appendix A: Expected Weeds and Identification | | | | |
|---|---|---|---|---|
| **Species** | **Status** | **Required treatment** | **Potential location** | **Identification** |
| **Sagittaria**<br><br>*Sagittaria Platyphylla* | WONS<br><br>Class 4 | Low – high volume spot spray, dependant on occurrence of large weed mass and proximity to native vegetation. Application of herbicide to isolate and discrete occurrences of weed species | Creek lines. | |
| **Willows**<br><br>*Salix spp. except S.babylonica, S.x calodendron & S.x reichardtii* | WONS<br><br>Class 2 and 3 | Apply high rates of grass selective herbicides any time from autumn to spring. | Creek lines. | |
| **Salvinia**<br><br>*Salvinia Molesta* | WONS<br><br>Class 2 | Mechanical weeding – Removal of weeds from water with mechanical harvesters and scoops.<br><br>Low – high volume spot spray, dependant on occurrence of large weed mass and proximity to native vegetation. Application of herbicide to isolate and discrete occurrences of weed species | On surface water. | |

| Appendix A: Expected Weeds and Identification | | | | |
|---|---|---|---|---|
| **Species** | **Status** | **Required treatment** | **Potential location** | **Identification** |
| **Fire Weed**<br><br>*Senecio madagascariensis* | WONS<br><br>Class 4 | Chipping removal of plants.<br><br>Low – high volume spot spray, dependant on occurrence of large weed mass. | Roadsides, pastures and areas adjacent open forest. Prefers bare soil to establish. | |

# Construction Environmental Management Plan
## Hutchinson Builders

### Mainsbridge School

### Appendix I: Erosion and Sediment Management Plan

## 1. PURPOSE

To address the requirements of the Development Consent in reference to a Construction Erosion and Sediment Control Plan for construction of the Mainsbridge School at the Warwick Farm Public School.

## 2. SCOPE

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

## 3. PROCEDURE

This Erosion and Sediment Management Plan details how Hutchinson Builders will undertake works associated with the Project in accordance with provisions made in the following legislative guidelines;

- Water Administration Act 1986;
- Managing urban Stormwater – Soils and Construction Volume 1, Landcom 2004; "The Blue Book";
- Guidelines for Erosion and Sediment Control on Building Sites; and
- Managing Urban Stormwater Design DEC, 1998.

**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.<br>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 |
| 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<br>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<br>Site workers<br>Haulage | Throughout |
| **Performance Indicators** | **Responsible** | **Timing** |
| No evidence of soil mobilising off site into stormwater drains or nearby water bodies. | Construction Project Manager | Throughout |

| Table 1: Erosion and Sediment Control Plan | | |
|---|---|---|
| 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 |
| **Monitoring** | **Responsible** | **Timing** |
| Construction Project Manager (or delegate) should assess stockpile conditions daily, ensuring they are covered (if necessary). | Construction Project Manager Site workers | Throughout |
| The Construction Project Manager (or delegate) shall record details of any erosion onsite and immediately take corrective measures to prevent further such occurrence. | Construction Project Manager Site workers | Throughout |
| **Reporting** | **Responsible** | **Timing** |
| Erosion/ sedimentation issues should be reported to the CPM immediately. | Construction Project Manager Site workers | Throughout |
| The CPM should record any incidents in a logbook or form and report on corrective actions taken before the recommencement of site work. | Construction Project Manager | Throughout |
| **Corrective Actions** | **Responsible** | **Timing** |
| Sediment trapped by the down slope controls should be removed as required to maintain effectiveness. This sediment can be re-stockpiled. | Construction Project Manager Site workers | Throughout |
| Investigate the cause of the incident. | Construction Project Manager | Throughout |
| Restore control measures prior to the recommencement of site works | Construction Project Manager | Throughout |

# Construction Environmental Management Plan
## Hutchinson Builders

### Mainsbridge School

### Appendix J: 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;<br>• Notify local emergency services if required based on severity of situation;<br>• Cease activities and implement appropriate response procedures to minimise environmental impact;<br>• Notify the Hutchinson Builders Project Supervisor and Project Manager; and<br>• Notify regulatory authority and project client where required. |
| Water pollution | • Switch off pump, close valves, seal hoses, plug leaks (stops water source);<br>• Form a barrier around the discharge i.e. booms, sand bag bunds;<br>• Divert discharge away from drainage lines and water courses;<br>• 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;<br>• Liaise with any affected community stakeholders, manage complaints;<br>• Reassess construction methodologies and plant items used; and<br>• Monitor noise and vibration impacts in accordance with compliance levels. |
| Air pollution e.g. dust, odour | • Cease dust / odour generating causing works;<br>• Engage water cart to wet down exposed soil surfaces;<br>• Cover odour generating stockpiles with material covers e.g. geo-textile; and<br>• 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;<br>• Notify Project Manager;<br>• Liaise with any affected community stakeholders, manage complaints;<br>• Cultural heritage – notify appropriate regulatory authority; and<br>• Limit access to area with safety barriers. |
| Non approved impact to vegetation | • Cease construction activities and make the area safe;<br>• Notify Project Manager and Project Supervisor; and<br>• 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.;<br>• Remove any hazardous or flammable construction materials from the area where possible e.g. fuel containers, plant and equipment if safe to do so;<br>• If unsafe, notify the local Fire Control Services and safely evacuate the area;<br>• If required, notify local residents to evacuate affected areas;<br>• No hot works to be carried out during “Total Fire Ban” days;<br>• 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;<br>• 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;<br>• Remove plant and equipment from, low lying or flood prone areas in times of heavy or prolonged rainfall;<br>• Restrict access to site by blocking access routes, installing warning signs and informing the wider construction team; and<br>• 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;<br>• Contain the discharge- Form a barrier around the discharge i.e. sediment fences, sand bag bunds; and<br>• 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;<br>• Contain the spill - Form a barrier around the discharge i.e. booms, sand bag bunds;<br>• Recover the spill – use absorbent material from the spill kits to soak up the spilt liquid. Can also use soil, sand or absorbent pads;<br>• 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;<br>• Dispose of the waste – in accordance with its waste classification; and<br>• 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 Project Manager - Phil Ho<br>Greencap Environmental Consultant – Alex Chaplin | 0427 858 900<br>0427 975 504 |
| Pollution incidents | EPA | 131 555 or 02 9995 5000 (24 hours) |
| | Ministry of Health | 9391 9000 |
| | SafeWork NSW | 13 10 50 |
| | City of Liverpool | 1300 362 170 |
| Electricity Supplier (NSW)<br>Loss of supply, fallen wires, or other electrical emergency | TransGrid<br>Endeavour Energy | 1800 027 253<br>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<br>Hutchinson Builder Project Manager - Phil Ho | 000 or 112 (from a mobile)<br>(02) 427 858 900 |
| 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** |
| Project Manager | Phil Ho | 0427 858 900 |
| **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 |
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| 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? | | | |

# Construction Environmental Management Plan
## Hutchinson Builders

### Mainsbridge School

### Appendix K: Noise and Vibration Management Plan

# 1. PURPOSE

To address the requirements of the Development Consent in reference to a Construction Noise and Plan for construction of the Mainsbridge School at the Warwick Farm Public School.

# 2. SCOPE

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

# 3. PROCEDURE

This Soil and Water 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 day care centre on the northern boundary and the Warwick Farm Public School on the southern 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 Noise Controls

### 3.4.1 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.

### 3.4.2 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.

### 3.4.3 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.

### 3.4.4 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.

### 3.5 Vibration Controls

#### 3.5.1 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).

### 3.6 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 1: Dilapidation Survey Requirements**

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

## 4. SITE CONTROL MEASURES

### 4.1 Standard Working Hours

Monday to Friday: 7am to 5pm

Saturday: 8am to 1pm

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.

SINSW's Community Communication Strategy for the site specifies additional construction hours. Rock breaking, hammering, sheet piling and similar activities are only to be conducted in the following hours:

Monday to Friday: 9am to 12pm

Monday to Friday: 2pm to 5pm

Saturday: 9am to 12pm

### 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 approval by Department of Education and local council.

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

### 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 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.

### 4.5 Monitoring

- The Development Consent C20. requires vibration monitoring for vibratory compactors used within 30m of residential buildings to ensure compliance with the following criteria as prescribed in C19.:

  *(a) for structural damage, the latest version of DIN 4150-3 (1992-02) Structural vibration - Effects of vibration on structures (German Institute for Standardisation, 1999); and*

  *(b) for human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration: a technical guideline (DEC, 2006) (as may be updated or replaced from time to time).*
- 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.

### 4.6 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;
- 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.

### 4.7 Community Liaison

The following phases of the community engagement has been undertaken at the time of writing this plan (25/06/2019):

1) Site Office with the Assistant Principal, teacher representative, SINSW and Head Contractor - 06/06/19
2) Meeting with Parent and Teachers before school with SINSW Community engagement member – 19/06/19
3) Presentation to Parents (Warwick Farm PS and Liverpool Council Childcare Centre) and teachers at their coffee club – 19/06/19
4) Letterbox drop, and door knock with Warwick Farm residents – 19/06/19

Further proposed community engagement strategies include the following:

1) Buildability workshop with the Warwick Farm Principal and Project team – 26/06/19
2) Meeting with the Manager of Liverpool Council Childcare Centre – 26/06/19

All community engagement works have been completed as provided in Section 5.5 of this CEMP.

Use **Table 2** to record occasions or refer to Section 5 of the CEMP for Community Consultation when notifications to the community take place. Use **Table 3** to record any vibration complaints.

| Table 2: Schedule of Community Liaison | | | | |
|---|---|---|---|---|
| **Date of Advice** | **Medium** | **Area Covered** | **Activity** | **Position & Signature** |
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| Table 3: Schedule of Noise/Vibration Complaints and any Noise Incidences | | | |
|---|---|---|---|
| **Date** | **Complaint/Incident** | **Response** | **Position & Signature** |
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# Construction Environmental Management Plan
## Hutchinson Builders

### Mainsbridge School

### Appendix L: Tree and Fauna Management Plan

# 1. PURPOSE

To address the requirements of the Development Consent in reference to a Construction Environmental Plan for construction of the Mainsbridge School at the Warwick Farm Public School.

# 2. SCOPE

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

# 3. PROCEDURE

This Tree and Fauna Management Plan details how Hutchinson Builders will undertake works associated with the project to ensure no impacts occur to the tree species located on the creek bank on the eastern boundary, and to trees remaining on site. The plan also details how to minimise disturbance to fauna, including threatened species and their habitat and access corridors.

The Tree and Fauna Management Plan should be read in conjunction with the Biodiversity Management Plan.

# 4. EXISTING ENVIRONMENT

A Biodiversity Assessment Reporting Conducted in July 2018 identified exotic grassland, exotic planted vegetation and Forest Red Gum on floodplain of NSW (River-flat Eucalypt Forest. The Forest Red Gum accounted for approximately 37ha of the 1.7 ha of vegetation. The Red Gum vegetation community is comprised of midstory and canopy species that are 'native vegetation; but do not occur within the Sydney Basin Bioregion. The understory consisted of native grasses, exotic species constituted ~50-95% of underground species. No Hollow bearing trees were identified during the assessment.

The site was identified as suitable land for the Southern Myotis (bat) and the Grey-headed Flying Fox. Minimal fauna habitat was identified. No hollow bearing trees, or substantial fauna habitat in the form of coarse woody debris were identified.

# 5. TREES

## 5.1 Initial Works

The following measures are to be undertaken prior to construction:

- The Biodiversity Management Plan is to be reviewed and clearly mark and document all vegetation to be retained, removed or replanted;
- Any hollow bearing trees, if identified, are to be marked out to be avoided;
- Protection to trees will be provided in the form of screening of trees with fabric and wooden stakes around the trunks;
- All machinery is to arrive on-site in a clean washed condition, free of fluid leaks; and
- All vegetation within the site that is not required to be cleared for construction purposes shall be retained and incorporated into the landscaping and revegetation.

## 5.2 During Construction Works

During construction works the following tree management aspects are to be considered;

- Hollow bearing trees will be avoided where practicable;
- Logs from hardwood trees are to be retained and reinstated into the creek;
- Stockpiling of soils are to occur a minimum of 2 metres away from trees and/or not under the tree dripline;
- Ensure all herbicides and pesticides used on site are registered for use within a waterway as per NSW DPI guidelines;
- All plant and equipment shall be inspected daily for leakage of oil, fuel or hydraulic fluids. Machinery found to be leaking are to be immediately repaired or removed from site;
- Any additional green waste is recommended to be used as mulch; and
- Any excess green waste to be taken off site to an appropriate licensed facility.

### 5.2.1 Activities Near Trees

- Avoid manoeuvring heavy vehicles and equipment under the tree canopy to prevent damage to trunks and minimise the potential for soil compaction and vibration to the roots;
- If boring under trees is required, bore at depths greater than 1m to avoid harming the root system;
- No chemical or dangerous goods are to be stored under the tree canopy;
- Do not service of refuel vehicles, equipment or machinery under the tree canopy;
- Avoid excavating under the tree canopy. Hand dig/trench wen around tree root systems when practicable; and
- Consult a qualified arboriculturist when cutting trees and/or tree roots.

## 6. FAUNA

Hutchinson Builders is responsible for the detection and protection of all fauna located within the site boundaries and adjacent areas affected by the works:

- All vegetation is to be checked for wildlife prior to commencing works;
- Potential burrows are to be marked and assessed by an ecologist;
- Suitable tree sections will be used to provide habitats for ground dwelling fauna identified;
- An ecologist is to be present on site when tree-felling and large vegetation clearing is undertaken;
- Fauna is only to be handled by trained fauna handlers, animals are to be left to leave on their own volition;
- Wires is to be contacted if wildlife is injured or at risk on site;
- Potential for collisions with fauna to occur on site would be mitigated by ensuring the site vehicles adhere to the site speed limit of 10km/h as per the T&PMP in Appendix G;
- Food scraps and rubbish are to be appropriately disposed of in sealed receptacles to prevent attracting vermin such as foxed, rats, dogs and cats which can pose a threat to fauna on site.

# Construction Environmental Management Plan
## Hutchinson Builders

### Mainsbridge School

### Appendix M: Biodiversity Management Plan

# 1. PURPOSE

To address the requirements of the Development Consent in reference to a Biodiversity Management Plan for construction purposes at the construction of the Mainsbridge School at the Warwick Farm Public School.

# 2. SCOPE

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

# 3. PROCEDURE

This Biodiversity Management Plan details how Hutchinson Builders will undertake works associated with the project to ensure that potential impacts to biodiversity are appropriately management.

## 3.1 Existing Environment

The project area is primarily clear of dense vegetation, with open grassed areas and sparse trees. On the eastern boundary the Brickmakers Creek is lined by dense vegetation consisting of undergrowth and trees.

A Biodiversity Assessment Report conducted in July 2018 ref: *Alphitonia (20128) Biodiversity Development Assessment Report* (BDAR), identified exotic grassland, exotic planted vegetation and Forest Red Gum on floodplain of NSW (River-flat Eucalypt Forest). The Forest Red Gum accounted for approximately 0.37 ha of the 1.7 ha of vegetation in the investigation area. Refer to Attachment A, figure 1 for the extent of the Forest Red Gum plant community (shaded green).

The Red Gum vegetation community is comprised of midstory and canopy species that are 'native vegetation; but do not occur within the Sydney Basin Bioregion'. The understory consisted of native grasses, exotic species constituted ~50-95% of underground species. No hollow bearing trees were identified during the assessment. Refer to Attachment A, figure 1 for the *Alphitonia* (2018) biodiversity values map.

The site was identified as suitable land for the Southern Myotis (bat) and the Grey-headed Flying Fox. Minimal fauna habitat was identified. No hollow bearing trees, or substantial fauna habitat in the form of coarse woody debris were identified.

## 3.2 Tree Management

A tree impact assessment report conducted in August 2018 ref: *Paul Shearer Consulting (2018) Arboricultural Impact Assessment Report* identified which trees and plant communities will be affected during the proposed remediation and construction of the site. The assessment identified 46 trees within 15m of the proposed development, six of which were considered significant in the community due to the scale, amenity value and for other considerations. A stand of approximately 20 eucalypt trees, were identified on the south-eastern portion of the site.

The assessment identified the stand of 20 trees are to be retained, eight trees that are to be retained, one tree that may be retained or removed and 37 trees that are to be removed.

The trees to remain on site are located on the south-east portion of the site, this area is considered suitable for active management and restoration. Additional restoration is to be considered on the whole eastern boundary of the site post-construction as there are no proposed structures in the area. The remainder of the site will consist of hardstand, a sportsfield and gardens and are not considered suitable for biodiversity management and restoration. Refer to Section 3.8 for potential tree replenishment options.

Refer to Attachment A, figure 2 for the Paul Shearer Consulting (2018) tree management plan map, showing trees to be retained.

### 3.3 Biodiversity Credits and Offset

The BDAR identified the value of credits required to be purchased/offset based on the removal of all 0.37ha of the Red Gum Vegetation Community. A small portion of the community is to be retained, refer to figure 2 for the trees to remain on site.

### 3.4 Hollow Bearing Trees

During the Alphitonia 20018 assessment, no hollow bearing trees were identified. However, if a hollow bearing trees is identified during construction, it will be managed under the unexpected finds protocol in Section 5 of this plan.

### 3.5 Fauna Management

The following measures are to be undertaken to manage fauna on site:

- All vegetation is to be checked for wildlife prior to commencing works as a preclearance survey, conducted by a suitably qualified ecologist;
- Potential burrows are to be marked and assessed by an ecologist;
- Suitable tree sections will be used to provide habitats for ground dwelling fauna identified;
- A suitably qualified ecologist is to be present on site at all times when tree-felling and vegetation clearance is undertaken to act as a spotter/catcher;
- A Post Clearance Report is to be prepared by the suitably qualified ecologist and submitted to the local council; and
- Fauna is only to be handled by trained fauna handlers.

### 3.6 Feral Pest and Weed Management

- Food scraps and rubbish are to be appropriately disposed of in sealed receptacles to prevent attracting vermin such as foxed, rats, dogs and cats which can pose a threat to fauna on site;
- Bins used on site are to be bird and animal proof;
- All litter will be collected and disposed as above at the start and end of each day of demolition and construction;
- Considering the size of the site, trapping of feral cats, foxes and rabbits are to be utilised for feral pests. Traps are to be trialled if pest are identified on site, or evidence such as tracks, droppings or disturbance of the bins are noted;
- A Weed Management Plan is presented in Appendix H of this CEMP, including potential weeds to be encountered on site, inspection and monitoring and weed removal requirements. Below are the weed control measures to be implemented on site:
    - Weed control will be carried out prior to and during the construction phase to ensure the spread of weeds and their associated seeds are contained / controlled so they do not contaminate or impact the works, including stockpile areas and the surrounding environment;
    - Prior to entering the project area, the work area will be inspected to confirm the presence of noxious weeds. Where noxious weeds are identified within the construction corridor, weeds will be removed to the extent necessary, placed in a separate waste receptacle and covered to prevent seed spread;
    - All noxious weeds that are cleared as part of the project will be segregated from non-weed

species and disposed of to a licenced waste facility;

- Inspection/maintenance procedures will be undertaken to reduce the carriage of weed material on machinery; and

The introduction or spread of weed species on site will be minimised by avoiding introducing fill to the Project site and washing equipment and machinery before leaving a site and entering a new site.

### 3.7 Tree Protection

Prior to construction, trees identified as protected/to remain on site are to be managed under the following:

- Protective fencing and ground cover is to be erected around the protected trees, installed at the tree protection zone (TPZ);
- The TPZ are to be in installed and retained in accordance with AS4970 – 2009 to protect retained vegetation during construction works;
- An arborist is to be engaged to oversee implementation of the installation of tree protection;
- Tree fencing is to consist of 1.8m high chainwire fencing on above-ground concrete supports;
- Ground protection within the TPZ is to consist of a 75mm layer of mulch over a sheet of geotextile fabric, this depth of mulch is to be maintained during the life of the project;
- Signage is to be presented on all TPZ areas; and
- If traffic is anticipated with the TPZ then rumble boards are to be installed.

Examples of tree protection and signage to be erected is available in figures 3 and 4 of Attachment A of this Plan.

### 3.8 Site Training

During demolition and construction, the following measures will be undertaken to further manage tree protection:

- Pre-start meetings are to include information regarding TPZs, no-go areas, limits on clearing, limits on plant access, and the tree and fauna mitigation measures implemented on site;
- Maps of the TPZs and the no/go zones will be presented in the site office and the induction office;
- Site inductions will include information on the TPZ/SRZ and biodiversity management measures on site;
- Machine operators and other workers to be instructed on limits of clearing.

### 3.9 Tree Replenishment

Trees that are removed for construction are to be replaced with native species in accordance with Liverpool Council's guidelines for biodiversity and tree replenishment. Trees selected to be planted and the planning regime must take into consideration the design of the constructed site, such that roots do not pose a risk to building integrity. Revegetation is to only be undertaken by a suitably qualified/experienced bush regeneration contractor.

The following tree types have been identified to be present in the Liverpool government area and are to be considered to be planted on-site:

- Forest Red Gum;
- Hard-leaved Scribbly Gum;
- Parramatta Red Gum; and

- Broad-leaved Ironbark – Grey Box.

A plant schedule is to be produced by a suitably qualified arborist to replenish the site. Plants must be grown to the Australian Standard AS 2303-2015 Tree Stock for Landscape Use or NATSPEC. Associated landscaping is to consider the DEC internal document; Landscape Management in NSW School.

## 4. MONITORING AND REVIEW OF THIS PLAN

Routine monitoring will be undertaken by the Project Manager and Project Supervisor to ensure that controls are implemented and installed according to this plan. Monitoring of the fencing and depth of mulch is to be undertaken using the Environmental Checklist provided in Appendix B of the CEMP. Additional monitoring is to be conducted:

- Prior to planned vegetation clearance to ensure that all protection measures are in place to prevent removal of protected trees;
- Following bulk earthworks to determine if the SPZ has been impacted; and
- Following storm events to ensure the mulch is maintained to the appropriate depth.

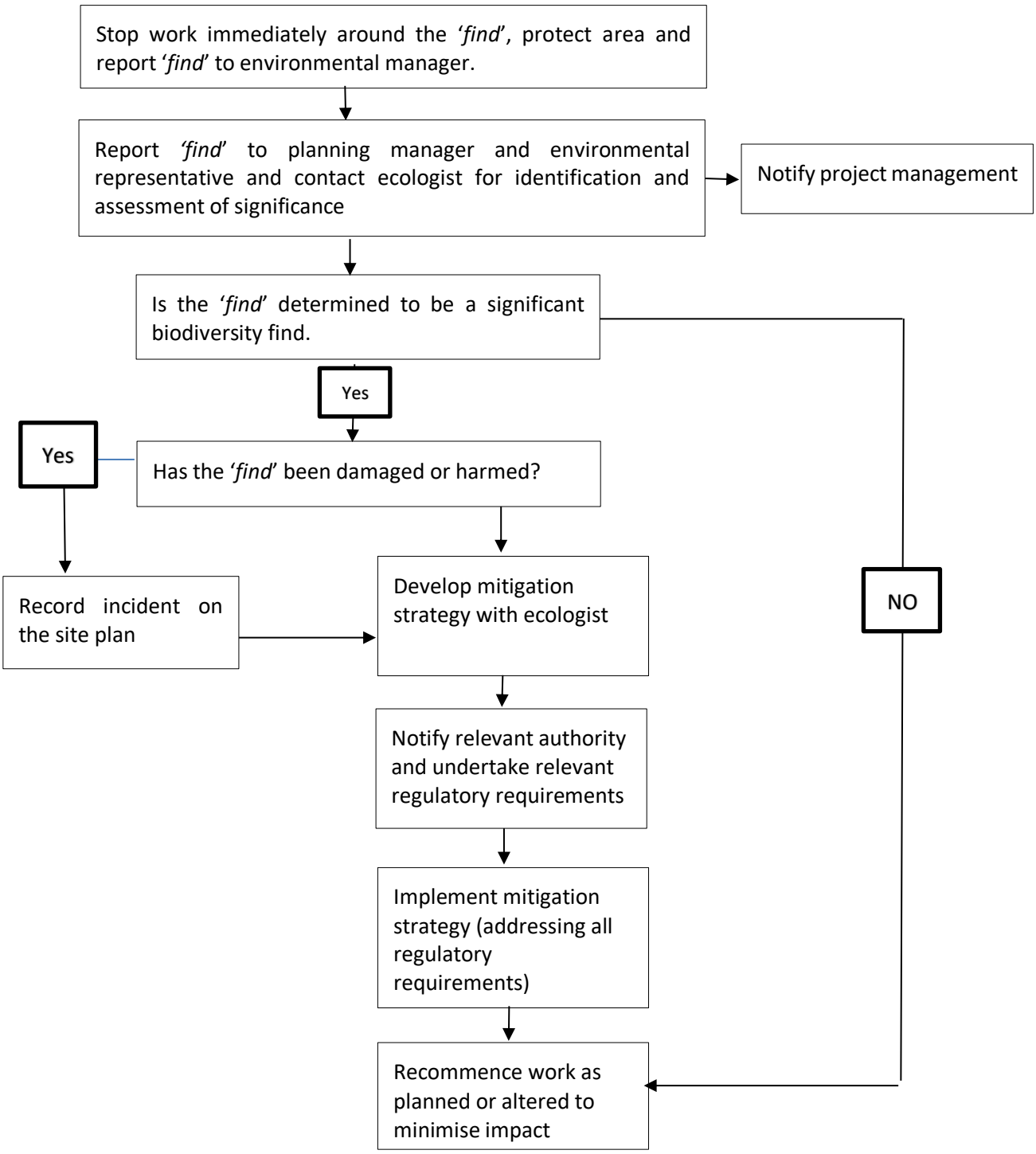
The Project Manager shall ensure that the Biodiversity Management Plan is reviewed after each inspection, to determine the effectiveness of the controls.

## 5. UNEXPECTED BIODIVERSITY FINDS

This unexpected finds procedure should be applied by all workers when unexpected flora or fauna is identified. Unexpected finds can include but are not limited to:

- Hollow bearing trees;
- Trees not identified in the Biodiversity Assessment report;
- Burrows and bird nests not identified by the ecologist prior to clearing; and
- Evidence of fauna, such a tracks and droppings.

Unexpected Biodiversity Finds Protocol:



# Biodiversity Management Plan
## Hutchinson Builders

### Mainsbridge School

### Attachment A: Figures

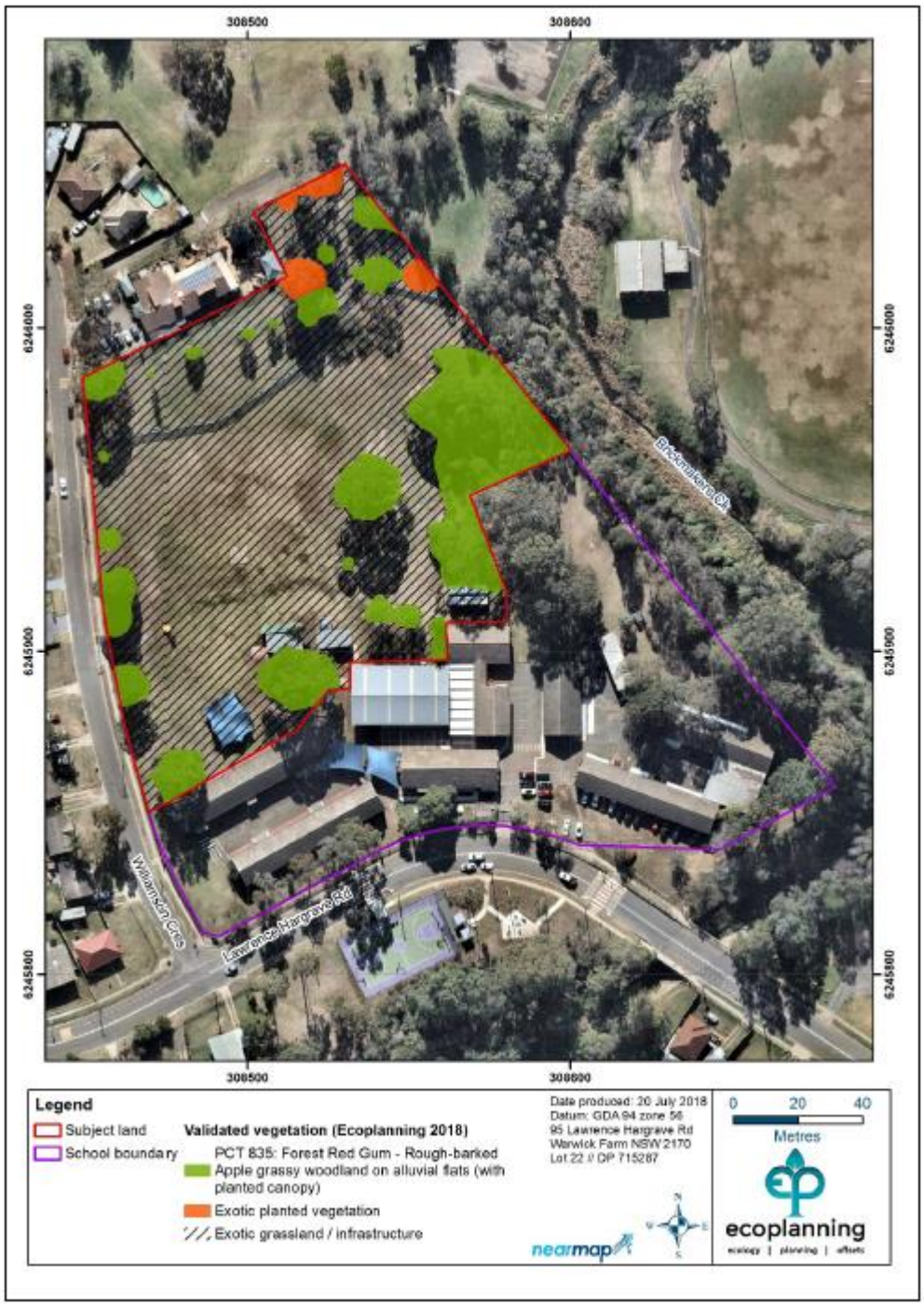



*Figure 1: Biodiversity Values of the Site (Alphitonia 2018)*

*Figure 2: Tree Management Plan (Paul Shearer Consulting 2018)*

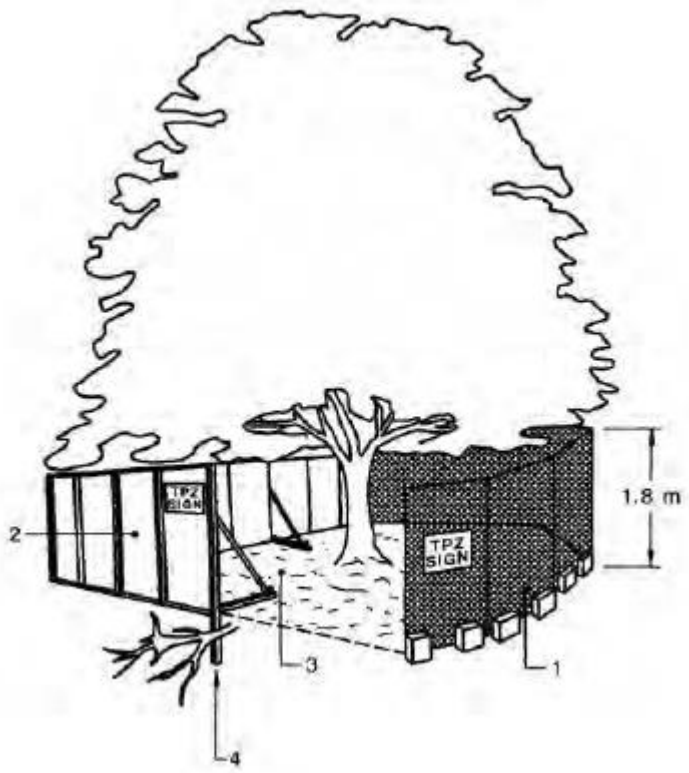



*Figure 3: Example of Tree Protection Fencing (Paul Shearer Consulting 2018)*

*Figure 4: Example of Tree Protection Fencing (Paul Shearer Consulting 2018)*

# Construction Environmental Management Plan
## Hutchinson Builders

### Mainsbridge School

### Appendix N: Bush Fire and Flood Emergency Response Plan

# 1. PURPOSE

To address the requirements of the Development Consent in reference to a Construction Environmental Plan for construction of the Mainsbridge School at the Warwick Farm Public School.

# 2. SCOPE

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

# 3. PROCEDURE

This Bush Fire and Flood Emergency Response Plan details how Hutchinson Builders will undertake works associated with the project to manage response to potential bush fire and flood risks.

## 3.1 Existing Environment

The site is currently is grass with sparse trees across the site. The site is adjacent to the Brickmakers Creek (on the eastern boundary), the creek is a tributary to the Georges River to the north-east. Land to the west and south is generally covered in residential buildings and school buildings. Land east of the creek is used as a sports field with sparse tree coverage. Land to the north is covered in grass land, with dense vegetation following the Cabramatta Creek and flood plain.

The closest NSW Fire and Rescue is located on St Johns Road in Cabramatta, approximately 2.5km to the north-east, approximately seven minutes away during light traffic.

The Liverpool LEP 2008 identified the land to be within a flood prone area and flood planning area.

## 3.2 Bush Fire

### 3.2.1 Ignition Sources

Fuels, lubricants and some chemicals will be used during construction phase of the proposed modification. There is the potential of increased ignition sources as a result of routine construction activities such as the use of machinery.

### 3.2.2 Potential Impacts

The potential impacts of the project on fire management may include:

- Increased possibility of accidental fire in the region;
- Loss of life;
- Damage to infrastructure such as fences, machinery and site buildings;
- Increased susceptibility of erosion or invasion by weeds following a fire.
- Loss of vegetation and flora species; and
- Loss of localised fauna habitat and species in the event of a fire.

### 3.2.3 Bush Fire Management Measures

Mitigation measures developed to manage bush fire risk during construction of the project are separated into four elements as follows and are detail in Table 1-4:

- Prevention;
- Preparedness;
- Response; and
- Recover.

| Table 1: Prevention Methods | | |
|---|---|---|
| Aspect | Management Action | Responsibility |
| Fire Detection | Site personnel will report fires within the project area. | All site personnel |
| | Identify potential sources of ignition e.g. fuel storage areas. | All site personnel |
| | Hutchinson Builders will advise NSW RFS and the City of Liverpool Council of the contact details for the site (including after-hours contact details). | Project Manager |
| Fire Equipment | Vehicles will regularly be inspected and cleared of vegetation build-up. | Operator |
| | All machinery capable of causing a fire during operation will be fitted with appropriate guards to prevent accidental ignition of vegetation from sparks or heat sources. | Mechanic |
| | An on-site water truck/vehicle fitted with a water tank and pump system capable of initial attack of spot fires will be located will be located at the site office area. | Supervisor |
| | Fire fighting equipment (fire extinguishers, protective hear) will be supplied to all vehicles, machinery, and amenity areas. An effective placement plan for employees to locate necessary equipment in the event of an emergency will be available in site amenities. | HSE Advisor |
| | Fire equipment will be checked and tested regularly to ensure it is in good working order and will be replaced or repaired when necessary. | HSW Advisor |
| Access | Access roads to and around the site will be regularly inspected and graded to ensure rapid deployment of fire fighting vehicles and earthmoving equipment to roll vegetation at the fires edge (if required). | Supervisor |
| | At least two evacuation routes will be maintained from the work area and these will be identified to all personnel working on the project. | HSW Advisor |
| | Evacuation doors, points and routes will be clearly marked and maintained around temporary construction facilities, amenities, office and warehouse areas. | HSW Advisor |

| Table 1: Prevention Methods | | |
|---|---|---|
| Aspect | Management Action | Responsibility |
| Storage | Oxygen and fuel gas cylinders will not be stored together, with a minimum of 3 metres between cylinders. | Supervisor |
| | Flammable materials (solid, liquid or gases) shall not be stored within 5 metres of any occupied building. These materials will be suitably secured and correctly signposted "Danger, Highly Flammable." | HSW Advisor |
| Other | Open fires will not be allowed in the project area. | All personnel |
| | For all work involving heat, sparks or flame, such as welding and grinding all flammable materials will be cleared away from the area of works, whilst minimising disturbance to vegetation where possible. Fire extinguishers will be fitted to vehicles to extinguish spot fires. Where necessary a water cart and pump will be provided. | All personnel |
| | A Hot Work Permit will be required for any activity involving heat, sparks or flames. | HSW Advisor |

| Table 2: Preparedness Methods | | |
|---|---|---|
| Aspect | Management Action | Responsibility |
| Training | The Contractor's induction will include information from this Bush Fire Response Plan. Employees will be shown the location and use of fire-fighting equipment. Contractors will be briefed on relevant fire management practices and emergency response and evacuation procedures. Fire drills will be carried out on a monthly basis to ensure all personnel are familiar with the procedures. These will be addressed in the site induction. | HSE Advisor |
| Equipment | Fire-fighting equipment will be checked and maintained on a regular basis. | HSE Advisor |
| | Testing of alarm systems, escape routes and fire extinguishers will be conducted during weekly inspections. | HSE Advisor |
| Housekeeping | Hutchinson Builders will maintain excellent housekeeping standards of storage areas and construction areas to keep down potential sources of flammable material. | Supervisor |

| Table 2: Preparedness Methods | | |
|---|---|---|
| Aspect | Management Action | Responsibility |
| Water Supplies | A water truck/vehicle will be available for dust suppression and could be used to control small fires. | Supervisor |

| Table 3: Response Methods | | |
|---|---|---|
| Aspect | Management Action | Responsibility |
| Fire Suppression | Upon becoming aware of a fire, the observer will alert all bystanders and then attempt to extinguish the fire, if this can be done safely. If the fire can be suppressed without additional resources, then personnel will suppress the fire, make the area safe and organise a patrol to monitor the suppressed fire. | All site personnel present at the fire |
| | The senior person at the fire will co-ordinate fire-fighting activities and will be responsible for ensuring that all personnel are kept safe at all times. | All site personnel |
| | In the event that a fire is reported within the project area, Hutchinson Builders will assess the situation and decide whether to enact fire emergency procedures depending on the severity of the fire, current conditions and its potential to impact on infrastructure, or human and environmental values. Alternatively, if the fire is assessed as nonthreatening and is not likely to impact on infrastructure, or human and environmental values it will be closely monitored and allowed to burn out | Supervisor |
| | In the event that a fire occurs adjacent to the project area or surrounding bush lands, Hutchinson Builders will contact the NSW RFS and other relevant authorities to report the fire. Hutchinson Builders will assess the fire and whether it has the potential to migrate into the project area and impact on infrastructure, or human and environmental values, or significantly impact on the environmental values of the construction site. If this is the case, the Contractor will implement emergency response procedures and liaise with NSW RFS and other relevant authorities where necessary. | Supervisor |

| Table 3: Response Methods | | |
|---|---|---|
| Aspect | Management Action | Responsibility |
| Communication | In the event that control of the situation is taken by fire-fighting authorities, the Hutchinson Builders personnel will follow the directions of the relevant authorities and assist where possible. | All site personnel |
| | In the event that a significant bushfire occurs in the Project area, the Contractor will follow the communication protocol outlined below.<br>**NSW Fire and Rescue Cabramatta Fire Station (02) 9726 5940** | HSE Advisor |
| | If a bushfire occurs on or near the project area, the response time to communicate with the relevant agencies will be dependent on the severity of the fire. The NSW Fire and Rescue and other relevant stakeholders will be notified immediately of a significant fire by Hutchinson Builders. | HSE Advisor |
| | In the event of a significant bushfire requiring agency assistance, it is anticipated that the response time to communicate with these agencies will be less than 30 minutes. | HSE Advisor |
| | It will be the responsibility of Hutchinson Builders to communicate with the appropriate personnel to coordinate the necessary fire-fighting equipment required for the first response of the fire. In the event that the fire is not immediately suppressed, and further intervention is required the HSE Manager would be responsible for contacting the appropriate fire-fighting authorities. | HSE Advisor |
| Responsibility | It will be the responsibility of Hutchinson Builders to ensure the evacuation of buildings and affected areas within the project area to a pre-arranged emergency meeting point. | HSE Advisor |
| | Hutchinson Builders will be responsible for liaisons with local authorities such as the NSW Fire Service and City of Liverpool Council on an as needs basis. | HSE Advisor |

| Table 4: Assessment Methods | | |
|---|---|---|
| Aspect | Management Action | Responsibility |
| Recovery | Once the site has been deemed safe to re-enter Hutchinson Builders will assess the extent of damage to the site and equipment and determine if works can resume. Part of the assessment will be to determine if the resumption of works will cause increased environmental damage, such as increasing the susceptibility of erosion. | Project Manager |
| Review | The Bush Fire Response Plan will be reviewed if a significant fire event has occurred. | HSE Advisor |
| Reporting | All fire incidents will be reported. The person who observes the incident is responsible for reporting the incident. | All personnel |
| | Fire and safety training undertaken by site personnel will be recorded and maintained. | HSE Advisor |

### 3.2.4 Monitoring and Reporting

Weekly visual inspections will be conducted to ensure adequate fore control measures are being implemented and maintained at the site. Fire-fighting equipment are to be regularly checked to ensure it is in good working condition and will be replaced where necessary (after use, damage, loss or expiration date).

Evacuation points and routes will be clearly marked and maintained around the site. All staff are responsible for alerting of fires that occur within the project area.

All bush fires will be recorded as an incident. Records will document time, date, location and cause of fire.

**Table 5: Performance Indicators**

| Key Management Action | Performance Indicator |
|---|---|
| Maintain fire-fighting equipment | Fire-fighting equipment is in good, operable condition. |
| Maintain fire breaks | Fire breaks are clean and accessible. |
| Maintain evacuation routes | Evacuation routes are accessible, clearly signposted and maintained around the plant, office and accommodation areas. |
| Safe storage of dangerous goods | Oxygen cylinders and fuel are nor stored together (within 3m). Flammable materials are not stored within 5m of occupied buildings and secured and signposted. |
| Hot work permits | Completion of Hot Work Permits by contractors when conducting open flame activities. |
| Personnel fire training | All personnel likely to attend a fire are adequately trained. |
| Review of Bush Fire Response Plan | Plan reviewed annually or within 1 month of a bush fire incident. |
| Review training records | Record of training reviews available. |
| Complete fire incidence reports and notify relevant authorities | Incident reports are in place for all fires, date, location and area burnt. |

## 3.3 Flooding

### 3.3.1 Assembly Points and Refuge Protocols

Assembly points will be clearly identified on the site by aluminium placards and on safety notice boards within the site amenities. Refuge points will be indicated on the safety notice boards within site amenities.

### 3.3.2 Predicted Flood Levels

**Table 6: Summary of Existing Flood Behaviour**

| Catchment | Summary of Existing Flood Behaviour |
|---|---|
| Cabramatta Creek | The site is located on the eastern boundary of the Cabramatta Creek Flood plain. The majority of the 100 year ARI floodplain extent is located within open spaces. However, it intrudes into urban zones including the |

| Table 6: Summary of Existing Flood Behaviour | |
|---|---|
| **Catchment** | **Summary of Existing Flood Behaviour** |
| | residential land near the northern extent of the Lawrence Hargrave Road, east of Brickmakers Creek. |
| Brickmakers Creek | The majority of the 100 year ARI floodplain is located within open space zones. Marginal ingresses occur in residential zones land. The floodplain extends significantly into residential zones south-east and south-west of the intersection of Hume Highway and Copeland Street. And within Coolaroo Crescent and Wonga Street. Predicted flood levels from the creek indicate that flooding within the site would be between 0.5-1.0m for a 100 Year ARI event. |

### 3.3.3 Flood Emergency Response

| Table 7: Flood Mitigation and Response Measures | | | |
|---|---|---|---|
| **Mitigation/Measure** | **Implementation Stage** | **Responsibility** | **Site Use Phase** |
| General | | | |
| All construction personnel will be provided with information/training regarding the importance of flood warning and evacuation requirements. | Pre Construction<br>Construction | HSE Advisor | Construction |
| Temporary works such as hardstand areas and access tracks are to be designed and constructed to withstand flooding. | Project manager<br>Site Manager | Project Manager<br>Site Manager | Construction |
| Minimising the extent of obstructions within the flood prone areas as far as practicable at all times during construction. | Project manager<br>Site Manager | Project Manager<br>Site Manager | Construction<br>Operation |
| Removing construction infrastructure and equipment from the flood prone areas in the event of a forecast flood to minimise both the risk of damage to infrastructure /equipment and the risk of flood impacts on properties. | Project manager<br>Site Manager | Project Manager<br>Site Manager | Construction<br>Operation |
| Monitoring for Potential Flood | | | |
| Monitor Bureau of Meteorology (BoM) forecast heavy rainfall events in order to allow sufficient time to vacate and prepare the site prior to the commencement of heavy rainfall and flood events. | During major rainfall events in the Liverpool LGA catchments | Project Manager | Construction<br>Operation |
| Monitor Bureau of Meteorology (BoM) for flood warnings for the Cabramatta Creek and the Georges River. | During major rainfall events in the Liverpool LGA catchments | Project Manager | Construction<br>Operation |

| Table 7: Flood Mitigation and Response Measures | | | |
|---|---|---|---|
| **Mitigation/Measure** | **Implementation Stage** | **Responsibility** | **Site Use Phase** |
| Secure objects that are likely to float and cause damage. | Construction | Project Manager | Construction<br>Operation |
| Ensure construction equipment (or excess material) are removed from the low areas especially around creek areas. | Construction | Site Manager | Construction<br>Operation |
| Relocate waste containers, chemicals and dangerous goods above the potential flood line. | Construction | Site Manager | Construction<br>Operation |
| Locate plant and equipment on high ground when flooding is expected. | Per event | Site Manager<br>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 |
| Turn off electricity, secure generators and secure gas cylinders when flooding is expected. | Per event | Project Manager<br>Site Manager | Construction<br>Operation |
| Notification | | | |
| Declare the flood potential to the site staff and workers | When SES and BOM website identify flood warning for the area | Project Manager<br>HSE Advisor | Construction<br>Operation |
| Declaring the site closed. | When SES declare an imminent flood | Project Manager | Construction<br>Operation |
| Declaring the site reopened. | When SES have given the all clear | Project Manager | Construction<br>Operation |

| Table 7: Flood Mitigation and Response Measures | | | |
|---|---|---|---|
| **Mitigation/Measure** | **Implementation Stage** | **Responsibility** | **Site Use Phase** |
| Evacuation | | | |
| The emergency exit route to be taken before flood waters rise is to exit to the compound on Williamson Crescent. Site sheds will be utilised as a refuge point for high flood waters. | Before flooding of area | All personnel | Construction |
| The emergency exit route to be taken before flood waters rise is to exit to the compound on Williamson Crescent. School buildings will be utilised as a refuge point for high flood waters. | Before flooding of area | All school staff | Operation |
| During flooding the SES will advise through radio and the internet what roads are passable in the area. All site personnel will have secured and left the site by this time. | During flood event | All personnel | Construction<br>Operation |
| 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<br>Operation |
| Assessment of Damage and Remediation After Flood | | | |
| Ensure that damage is assessed and reported when all clear is given to return to site. | Following flood event | Project Manager<br>HSE Advisor | Construction<br>Operation |
| Remediate areas of damage, this includes clearing away of debris, sedimentation and blockage of uncompleted and temporary flood mitigation structures | Following flood event | Project Manager | Construction<br>Operation |
| Debrief all key personnel and update / modify the flood emergency response plan, as required. | Following flood event | Project Manager | Construction<br>Operation |
| Incorporating procedures to manage the effects of flooding on residential properties and the Warwick Farm Public School during construction. | Following flood event | Project Manager | Construction |

### 3.3.4 Training

All employees, contractors and utility staff working on site will undergo site induction training that will include details of this plan and the flood warning and evacuation requirements prior to construction commencing.

Staff of the Warwick Farm Public School will be made aware of this BF&FMP and will be communicated to students during evacuation and emergency education and drills.

In addition, the Emergency response plan will be tested every 6 months and will include a flood scenario to test the below requirements associated with this BF&FMP:

- Monitoring for flood and extreme weather events;
- Notifications;
- Site preparation prior to flood; and
- Evacuation requirements.

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in flood management or those undertaking an activity with a high risk of environmental impact.

Site personnel will undergo refresher training at not less than six monthly intervals. Daily pre-start meetings conducted by the Site Manager will inform the site workforce of any environmental issues relevant to flooding that could potentially be impacted by, or impact on, the day's activities.

### 3.3.5 Monitoring and Reporting

Weekly monitoring is to be conducted during the project which will include a review of the following:

- Monitoring of BOM website for flooding of the Carbamate Creek and the Georges River;
- Flood warning services; and
- Creek heights prior to a flood event.

All floods will be recorded as an incident. Records will document time, date, extent and damages from the flood.

## 3.4 Review

The Project Manager shall ensure that the Bushfire and Flood Management Plan is reviewed after each and every drill or after a fire or flood event.

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.

# Construction Environmental Management Plan
## Hutchinson Builders

### Mainsbridge School

### Appendix O: 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 Mainsbridge School at the Warwick Farm Public School.

## 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 (e.g. EIS Phase 2 Environmental Assessment and Remedial Action Plan)

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.

# Construction Environmental Management Plan
## Hutchinson Builders

### Mainsbridge School

### Appendix P: Unexpected Finds Protocol – Heritage

## 1. PURPOSE

To address the requirements of the Development Consent in reference to a Heritage Unexpected Finds Protocol for construction of the Mainsbridge School at the Warwick Farm Public School.

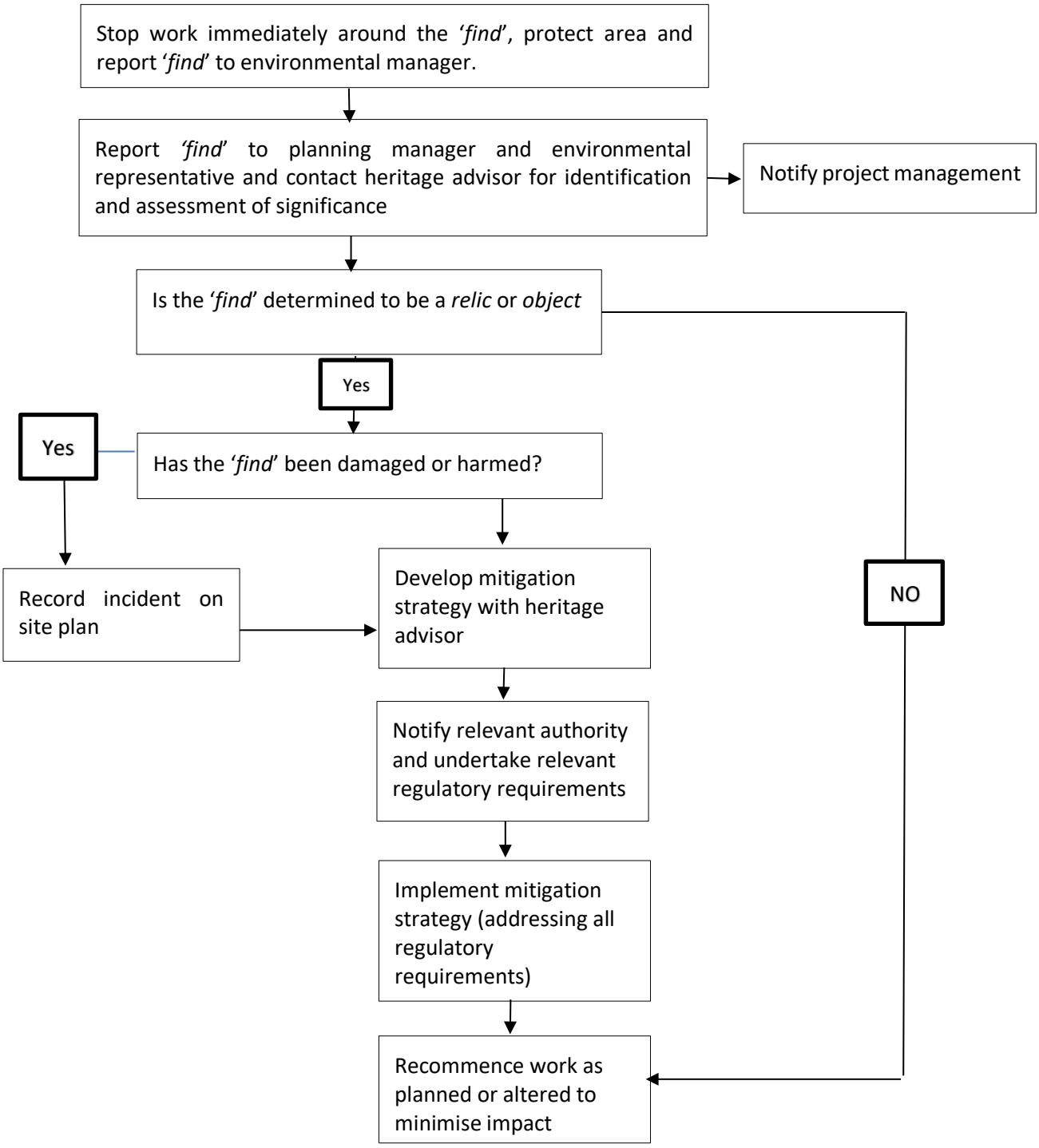
## 2. SCOPE

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 objects of heritage value are identified. Unexpected finds may include but are not limited to:

- Aboriginal stone artefacts, shell middens, burial sites, engraved rock areas, scarred trees;
- Remains of rail infrastructure including buildings, rail lines, signal boxes, bridges and stations;
- Remains of other infrastructure including sandstone or brick buildings, wells, drainage systems, bridges and retaining wells.
- Artefact scatters including clustering of broken bottles, glass ceramics, animal bones and clay pipes; and
- Archaeological human skeletal remains.


Stop work immediately around the 'find', protect area and report 'find' to environmental manager.
Report 'find' to planning manager and environmental representative and contact heritage advisor for identification and assessment of significance
Notify project management
Is the 'find' determined to be a relic or object
Yes
Yes
Has the 'find' been damaged or harmed?
Record incident on site plan
Develop mitigation strategy with heritage advisor
NO
Notify relevant authority and undertake relevant regulatory requirements
Implement mitigation strategy (addressing all regulatory requirements)
Recommence work as planned or altered to minimise impact

# Construction Environmental Management Plan
## Hutchinson Builders

### Mainsbridge School

### Appendix Q: Development Application Resolution Table

| Table 1: Development Consent Resolution Table | | |
|---|---|---|
| **Condition** | **Sub-condition** | **Resolution** |
| B17 - Management plans required under this consent must be prepared in accordance with relevant guidelines, and include | details of:<br>(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);<br>(ii) any relevant limits or performance measures and criteria; and<br>(iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; | **(i) 3. of this CEMP**<br>**(ii) 2.6 and 8 of this CEMP, 4.5 of Appendix K of this CEMP; and**<br>**(iii) 8 of this CEMP and Appendix B of this CEMP.** |
| | a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria; | **Appendix E, F, G, H, I, K, M, N of this CEMP** |
| | a program to monitor and report on the:<br>(i) impacts and environmental performance of the development;<br>(ii) effectiveness of the management measures set out pursuant to paragraph (c) above; | **(i) 8 and Appendix B of this CEMP**<br>**(ii) 8 of this CEMP** |
| | a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible; | **Appendix J** |
| | a program to investigate and implement ways to improve the environmental performance of the development over time; | **8 of this CEMP and Appendix B of this CEMP** |
| | a protocol for managing and reporting any:<br>(i) incident and any non-compliance (specifically including any exceedance of the impact assessment criteria and performance criteria);<br>(ii) complaint; and<br>(iii) failure to comply with statutory requirements. | **(i) Appendix J** |
| | a protocol for periodic review of the plan. | **8 of this CEMP** |
| | (a) Details of:<br>(i) hours of work; | **(i) Section 2.4 of this CEMP**<br>**(ii) Section 4.1 of this CEMP** |

| Table 1: Development Consent Resolution Table | | |
|---|---|---|
| **Condition** | **Sub-condition** | **Resolution** |
| B18. Prior to commencement of construction, the Applicant must prepare a Construction Environmental Management Plan (CEMP) and it must include, but not be limited to, the following: | (ii) 24-hour contact details of site manager;<br>(iii) management of dust and odour to protect the amenity of the neighbourhood;<br>(iv) stormwater control and discharge;<br>(v) measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site;<br>(vi) groundwater management plan including measures to prevent groundwater contamination;<br>(vii) external lighting in compliance with AS 4282-1997 Control of the obtrusive effects of outdoor lighting;<br>(viii) community consultation and complaints handling; | **(iii) Appendix C – EWMS**<br>**(iv) Appendix E – Soil and Water Management Plan**<br>**(v) Appendix E – Soil and Water Management Plan**<br>**(vi) Appendix E – Soil and Water Management Plan**<br>**(vii) Section 2.6 of this CEMP**<br>**(viii) Section 5 of this CEMP** |
| | Construction Traffic and Pedestrian Management Sub-Plan (see condition B20); | **Appendix G of this CEMP** |
| | Construction Noise and Vibration Management Sub-Plan (see condition B21); | **Appendix K of this CEMP** |
| | Construction Waste Management Sub-Plan (see condition B22) | **Appendix F of this CEMP** |
| | Construction Soil and Water Management Sub-Plan (see condition B23); | **Appendix F of this CEMP** |
| | Biodiversity Management Sub-Plan (see condition B24); | **Appendix M of this CEMP** |
| | Bush Fire and Flood Emergency Response (see condition B25); | **Appendix N of this CEMP** |
| | an unexpected finds protocol for contamination and associated communications procedure; | **Appendix O of this CEMO** |
| | an unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated communications procedure; | **Appendix P of this CEMP** |

| Table 1: Development Consent Resolution Table | | |
|---|---|---|
| **Condition** | **Sub-condition** | **Resolution** |
| | waste classification (for materials to be removed) and validation (for materials to remain) be undertaken to confirm the contamination status in these areas of the site; and | **N/A** |
| B20. The Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP) must address, but not be limited to, the following: | be prepared by a suitably qualified and experienced person(s); | **Appendix R of this CEMP** |
| | be prepared in consultation with Council and RMS; | **3.9 of Appendix G of this CEMP** |
| | detail the measures that are to be implemented to ensure road safety and network efficiency during construction in consideration of potential impacts on general traffic, cyclists and pedestrians and bus services; | **3.6 of Appendix G of this CEMP** |
| | detail heavy vehicle routes, access and parking arrangements; | **3.1 and Attachment A of Appendix G of this CEMP** |
| | (e) include a Driver Code of Conduct to:<br>(i) minimise the impacts of earthworks and construction on the local and regional road<br>network;<br>(ii) minimise conflicts with other road users;<br>(iii) minimise road traffic noise; and<br>(iv) ensure truck drivers use specified routes; | **3.6, 3.7 and 3.9 of Appendix G of this CEMP** |
| | (f) include a program to monitor the effectiveness of these measures; and | **3.11 of Appendix G of this CEMP** |
| | (g) if necessary, detail procedures for notifying residents and the community (including local schools), of any potential disruptions to routes. | **3.8 of Appendix G of this CEMP** |
| B21. The Construction Noise and Vibration Management Sub-Plan must address, but not be limited to, the following: | (a) be prepared by a suitably qualified and experienced noise expert; | **Appendix R of this CEMP** |
| | (b) describe procedures for achieving the noise management levels in EPA's *Interim Construction Noise Guideline* (DECC, 2009); | **3.3 and 3.4 of Appendix K of this CEMP** |
| | (c) describe the measures to be implemented to manage high noise generating works such<br>as piling, in close proximity to sensitive receivers; | **3.4 of Appendix K of this CEMP** |

| Table 1: Development Consent Resolution Table | | |
|---|---|---|
| **Condition** | **Sub-condition** | **Resolution** |
| | (d) include strategies that have been developed with the community for managing high noise generating works; | **4.1, 4.7 of Appendix K of this CEMP and 5.5 of this CEMP** |
| | (e) describe the community consultation undertaken to develop the strategies in condition B21(d); and | **4.7 of Appendix K of this CEMP** |
| | (f) include a complaints management system that would be implemented for the duration of the construction. | **4.7 of Appendix K of this CEMP and 5.6 of this CEMP** |
| B22. The Construction Waste Management Sub-Plan (CWMSP) must address, but not be limited to, the following: | (a) detail the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations; | **Each type of waste and the potential facilities identified has been identified in Appendix A of Appendix F of the CEMP. However, volumes and disposal locations have not be confirmed.** |
| | (b) removal of hazardous materials, particularly the method of containment and control of emission of fibres to the air, and disposal at an approved waste disposal facility in accordance with the requirements of the relevant legislation, codes, standards and guidelines, prior to the commencement of any building works. | **3.3 of Appendix F of this CEMP** |
| B23. The Applicant must prepare a Construction Soil and Water Management Plan (CSWMSP) and the plan must address, but not be limited to the following: | (a) be prepared by a suitably qualified expert, in consultation with Council; | **Appendix R, Section 6 and Attachment A of Appendix F of this CEMP** |
| | (b) describe all erosion and sediment controls to be implemented during construction; | **4.4 of Appendix E of this CEMP** |
| | (c) provide a plan of how all construction works will be managed in a wet-weather events (i.e. storage of equipment, stabilisation of the Site); | **5.5 of Appendix E of this CEMP** |
| | (d) detail all off-Site flows from the Site; and | **5.4 of Appendix E of this CEMP** |
| | (e) describe the measures that must be implemented to manage stormwater and flood flows for small and large sized events, including, but not limited to 1 in 1-year ARI, 1 in 5-year ARI and 1 in 100-year ARI). | **5.6 of Appendix E of this CEMP** |
| B24. The Biodiversity Management Sub-Plan (BMSP) must address, but not be limited to, the following: | (a) provide information and maps that define the biodiversity values across the site; | **3.1 and Attachment A of Appendix M of this CEMP** |
| | (b) outline priority investment area on-site where biodiversity will benefit from active management and restoration; | **3.2 and Attachment A of Appendix M of this CEMP** |

| Table 1: Development Consent Resolution Table | | |
|---|---|---|
| **Condition** | **Sub-condition** | **Resolution** |
| | (c) map potential areas for management of threatened and significant species; | **3.2 and Attachment A of Appendix M of this CEMP** |
| | (d) measures to minimise the loss of key fauna habitat, including tree hollows; | **3.4, 3.7 and 5 of Appendix M of this CEMP** |
| | (e) measures to minimise the impacts on fauna on site, including conducting fauna preclearance surveys prior to vegetation clearing, building/structure demolition; | **3.5 of Appendix M of this CEMP** |
| | (f) engagement of an appropriately qualitied ecologist with experience in capturing native wildlife to be on site for all vegetation removal activities; | **3.5 of Appendix M of this CEMP** |
| | (g) controlling weeds and feral pests; | **3.6 of Appendix M, and Appendix H of this CEMP** |
| | (h) an Unexpected Finds Procedure detailing procedures and management measures to be implemented in the event that flora and fauna is uncovered in any area not identified in the updated Biodiversity Assessment (BAR); | **5 of Appendix M of this CEMP** |
| | (i) measures to ensure biodiversity values not intended to be impacted are protected, including barriers and mapping of protected/ 'no-go' areas; and | **3.7 of Appendix M of this CEMP** |
| | (j) a program to monitor the effectiveness of the measures in the BMSP. | **4 of Appendix M of this CEMP** |
| B25. The Flood Emergency Response Sub-Plan (FERSP) must address, but not be limited to, the following: | (a) be prepared by a suitably qualified and experienced person(s); | **Appendix R of this CEMP** |
| | (b) address the provisions of the *Floodplain Risk Management Guideline* (OEH, 2007); | **3.3 of Appendix N of this CEMP** |
| | (c) include details of:<br>(i) flood emergency responses for both construction and operation phases of the development;<br>(ii) predicted flood levels;<br>(iii) flood warning time and flood notification;<br>(iv) assembly points and evacuation routes;<br>(v) evacuation and refuge protocols; and<br>(vi) awareness training for employees and contractors, and students. | **(i) Table 7 of Appendix N of this CEMP**<br>**(ii) 3.3.2 of Appendix N of this CEMP**<br>**(iii) Table 7 of Appendix N of this CEMP**<br>**(iv) Table 7 of Appendix N of this CEMP**<br>**(v) Table 7 of Appendix N of this CEMP; and**<br>**(vi) 3.3.4 of Appendix N of this CEMP** |

| Table 1: Development Consent Resolution Table | | |
|---|---|---|
| **Condition** | **Sub-condition** | **Resolution** |
| B26. Prior to the commencement of construction, the Applicant must provide sufficient parking facilities on-site, including for heavy vehicles and for site personnel, to ensure that construction traffic associated with the development does not utilise public and residential streets or public parking facilities. | | **Attachment B of Appendix G of this CEMP** |

# Hutchinson Builders

## Mainsbridge School

## Appendix R: Consultant Experience

| Table 1: Project Team Experience | | | |
|---|---|---|---|
| **Consultant** | **Qualifications** | **Relevant Consulting Experience** | **Position/ Role** |
| Matthew Barberson | BSc Environmental Engineering - METU<br>MEng Engineering Management – Cornell University | 7 | Team Manager – Environment NSW/ACT |
| Alex Chaplin | BSc Hons Geology - University of New South Wales<br>MSci Environmental Science and Law – University of Sydney<br>OHS General Induction for Construction Work in NSW | 3 | Consultant - Environment<br>Project Manager |
| Eustace Vance | Bsc Environmental, Applied Biology – Griffith University<br>Master of Environmental Management – The University of Newcastle | 6 | Senior Consultant Environment |
| Damian Licari | PhD in Science - University of Technology Sydney<br>Master of Business Administration – University of New South Wales<br>BSc – University of New South Wales<br>Biobanking Assessor Accreditation<br>Accredited Person (OEH) | 10 | Principal Consultant - Environment |
| George Zantey | Bsc Applied Science, (Food Technology) - University of Western Sydney<br>Diploma of Quality Auditing<br>Diploma of WHS<br>NSW Licensed Asbestos Assessor (LAA000196)<br>Exemplar Global Certified Management Systems Auditor | 9 | Senior Consultant - Property Risk |