

Glebe Island Concrete Batching Plant

Construction Environmental Management Plan



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1. Introduction

This Glebe Island Concrete Batching Plant Construction Environmental Management Plan (CEMP), which has been prepared by Hanson Construction Materials Pty Ltd (Hanson), sets out the environmental management system (EMS) to be used to manage and mitigate the environmental impacts from the construction phase of the Glebe Island Concrete Batching Plant development.

It also sets out the processes and procedures by which Hanson will:

- Ensure compliance with the relevant Conditions of Approval (CoA) from the Part 4 Approval under the EP&A Act for Construction of a Concrete Batching Plant (pending DA approval),
- Ensure compliance with all relevant Environmental Legislation including the Protection of the Environment Operations Act 1997;
- Ensure compliance with the Environmental Impact Statement Concrete Batching Plant; and
- Conform to the requirements of International environmental standard AS/NZS ISO 14001:2004.

This CEMP has been prepared to be consistent with the Guideline for the Preparation of Environmental Management Plans (DIPNR 2004).

1.1 Project Description

Hanson propose to develop a new intermodal aggregate storage facility and concrete plant to be located adjacent to Glebe Island Berth One (GLB1) (Lot 10 in DP 1170710) (the Site), as shown in **Figure 1**. The plant will be designed with a capacity to produce up to 1 million cubic metres of concrete per annum and will supply aggregate to other Hanson sites in the vicinity. The proposed plant will serve two purposes:

- To act as a shipping facility that will support a number of Hanson (and Hymix) concrete batching plants by improving the delivery of aggregates into the city centre; and
- To operate as a concrete batching plant that can supply concrete for infrastructure and buildings in the CBD and inner suburbs.

The concrete batching plant will be supported by new aggregate shipping terminal facilities at GLB1 with the capacity to manage up to 1 million tonnes of concrete aggregates per annum delivered by ship from the Hanson Bass Point Quarry and other facilities if deemed viable. By facilitating delivery by ship, the proposed development will reduce the number of trucks required to haul aggregates into Sydney on the regional road network by up to 65,000 trips per annum.

The new concrete batching plant will consist of the following:

- Six (6) aggregate storage silos;
- Six (6) cement storage silos;
- Truck wash out system;

- An office building, driver's room and amenities building and batch room;
- Three (3) loading bays incorporating high speed roller doors;
- Seven (7) poly water storage tanks; and
- Access and internal driveways.

Delivery vehicles will access the Facility from James Craig Road beneath the old Glebe Island Bridge abutment. Cement tankers will enter the facility at the north of the site and drive around the north of the enclosed building to enter from the east. Cement and fly ash delivered to the Facility will be stored in silos.

Aggregate will be delivered by ship to the GLB1 berth at Glebe Island. Ship deliveries are anticipated three times per week and each delivery will last approximately 12 hours. Approximately 10 ships are anticipated each month. The aggregate receiver bin will receive aggregate transferred directly from ships. From the receiving bin aggregate will be transferred via enclosed conveyor belt to the top of the proposed aggregate silos.

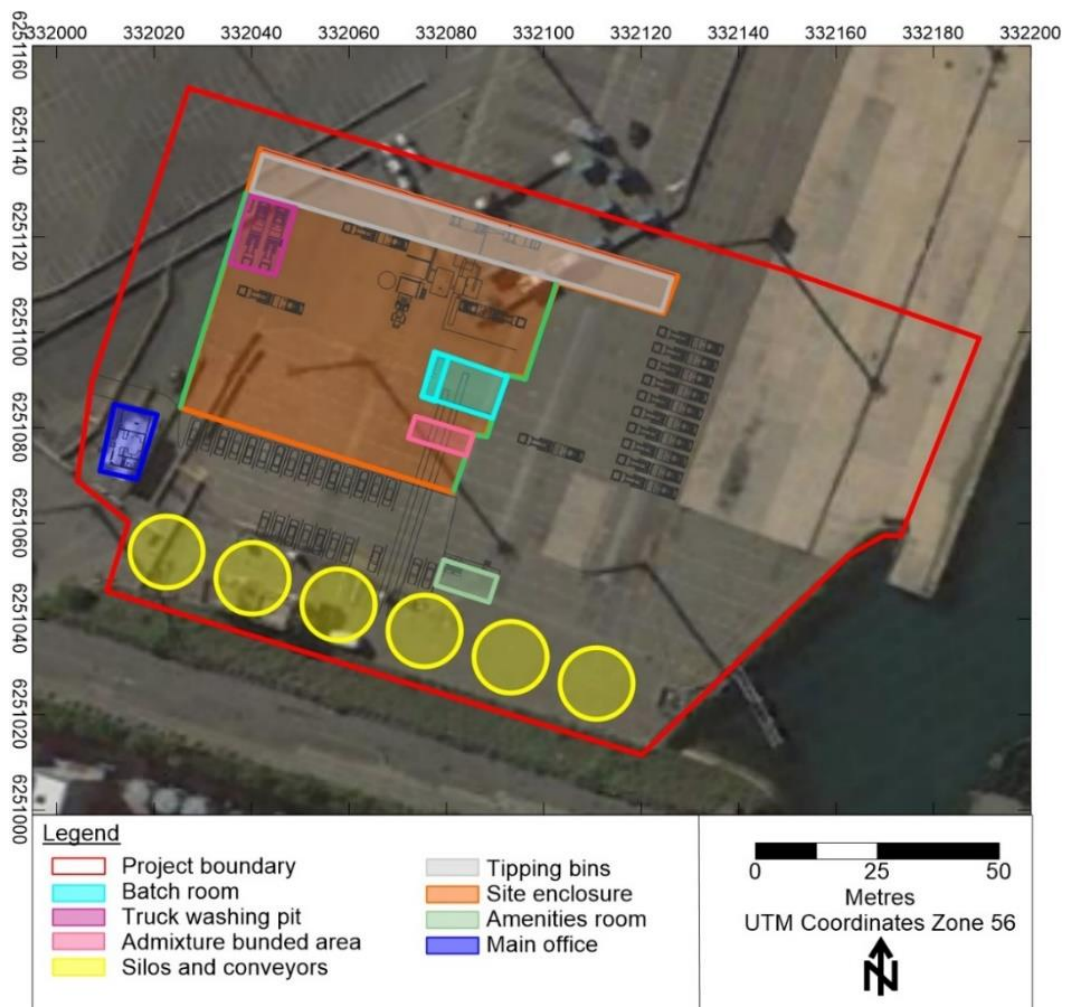


Figure 1: Glebe Island Concrete Batching Plant Location Map

2. Environmental Management System

2.1 Construction Environmental Management Plan

2.1.1 Purpose

This Construction Environmental Management Plan (CEMP) is designed to satisfy the requirements of the Hanson Integrated Risk Management System (IRMS). This CEMP is project specific and addresses the applicable best practice management guidelines and relevant legislation. It is a working document and is used to control the environmental management aspects of the Project.

This CEMP is prepared for use during the construction phase of the Glebe Island Concrete Batching Plant, Rozelle, NSW.

This CEMP interfaces with the other associated plans, which together describe the proposed overall project management system for the Project.

This CEMP is applicable to all staff, employees and subcontractors throughout the duration of the contract until project completion and its implementation and on-going development will be managed by the project team.

The latest revision of this plan is available on the Intranet. If any unsigned hard copies of this document are printed, they are valid only on the day of printing. In addition, this CEMP will be made available upon request.

The revision number is included at the bottom of each page. When revisions occur, the entire document will be issued with the revision number updated accordingly for each owner of a controlled copy.

Attachments/Appendices to this plan are revised independently of this plan.

2.1.2 Objective and Targets

When setting objectives and targets for the Project, consideration is given to the high level company objectives and targets detailed in the Corporate Risk Management Plan, legal and other requirements, the Project's significant environmental aspects, available technological options, likely hazards and risks, operational requirements and the views of interested parties.

The environmental objectives and targets for the Project align with the corporate and state business plans and are set out in **Table 1**.

Table 1: Environmental Objectives and Targets

Objective	Target	Key Performance Indicator
<u>Compliance</u> Ensure the project operates in accordance with all relevant environmental legislation.	Zero fines for breaches of legislation. (0 fines / year)	# fines / year
<u>Commitment</u> Reporting and close out of	All HIQE (Hazard Identification Quality and Environmental Report) are to	<3% overdue risk reports

<i>identified hazards IRMS Compliance</i>	<i>be actioned and closed out with the time frame agreed with the ER (Eastern Region) Risk Manager</i>	
	<i>Following the completion of the project, an improvement is required based on the previous IRMS audit completed on the site collectively</i>	<i>Improvement on %</i>
<u><i>Environmentally sustainable development</i></u>	<i>Minimise impacts which have a significant or irreversible effect to the environment in a manner that has minimal social and fiscal cost. (0 threatened fauna species deaths due to site activities).</i>	<i># threatened fauna species deaths due to site activities.</i>

Modifiers for Environmental Incidents

The Environmental Performance KPI percentage, as determined from the above mentioned environmental performance criteria table, is reduced by the occurrence of environmental incidents in accordance with the criteria noted in the **Table 2** below:

Table 2: KPI Percentage Reduction

Criteria	Percentage Reduction in KPI Percentages
<i>Occurrence of an incident defined as either one Category 1 Environmental Incident (Tier 2 under POEO Act) or one Penalty Infringement Notice (PINs) for water quality issues in any receiving environment (Incident)</i>	40%
<i>Occurrence of a second Incident</i>	100%

2.1.3 Authorisation of the CEMP

In summary, the Authorisation of the CEMP process will be as follows:

- Project Manager prepares CEMP and associated Sub Plans in accordance with the Project Environment Documents and standards and inputs from various sub-consultants as required;
- The CEMP is submitted to Regional Risk Manager and Development Manager for comments.
- Once the comments received from both Regional Risk Manager and the Development Manager; Hanson considers the comments in finalising CEMP.
- Hanson re-issues CEMP.

- If no further comments received from Regional Risk Manager and/or the
- Development Manager within 5 days of re-submission, Hanson will commence applying for a Project Approval.
- Once the Project Approval is granted, Hanson will commence with substantial construction.

The Development Manager authorises the first and subsequent issues of this CEMP. Authorised revisions will be issued as per distribution list for controlled copies included in this plan. The revision number and date shall be entered in Revision History for each subsequent revision. Proposed revisions will be prepared in consultation with IRMS' Representative, the Project Verifier and all relevant Authorities and stakeholders.

It is noted that the requirements set out in the Project Environment Documents are the minimum requirements for the CEMP and these requirements will not be decreased or otherwise reduced, including those relating to the scope, processes, procedures, effort, resources, experience or expertise, in the developed and any subsequently amended versions of the CEMP.

2.1.4 Changes to CEMP & Associated Documents

The IRMS allows for implementing changes to the CEMP. Specifically, if the CEMP documents:

- are not adequately addressing the Project requirements, are causing nonconformity;
- are no longer representing current practice or as a result of adverse audit findings; or
- are no longer representing Hanson's current or appropriate practice.

This also includes the following requirements:

- changes in project management processes;
- changes identified by the continuous improvement of processes;
- changes in law;
- changes in design;
- changes in construction sequencing, staging, methodology;
- changes in resourcing;
- the status and progress of the works;
- changes in access to the Site;
- variations; and
- any other event or circumstance impacting the delivery of the Project.

The changes must:

- remedy the deficiency in the Management Plans;
- not disturb the work under the contract significantly; and

- not reduce the effectiveness of the control and supervision of the works.

2.1.5 Control of the CEMP

The Project Manager issues copies of the CEMP to persons on the distribution list shown on the front cover.

The Project Manager records the issue of all copies of the CEMP on the Company Intranet. When revisions are made to the CEMP, all persons in the distribution list will receive a copy and the register is updated. Registered holders of the CEMP are responsible for destroying obsolete copies upon receipt of revisions.

2.2 Environmental Management Sub Plans

Environmental Management Sub Plans document how significant specific environmental aspects or risks are managed.

The Sub Plans that are required to be included as part of this CEMP include:

- Erosion and Sediment Management Plan;
- Waste Management Plan; and
- Traffic Management Plan.

These Sub Plans are appended to this Plan.

2.3 Competence, Training and Awareness

A record of inductions and training attendance is maintained and kept on site in the Training matrix and register. This register records the topics, dates, names of attendees, and trainer qualifications.

2.3.1 Competence

The Project Manager is responsible for the monitor of environmental training needs to ensure that all personnel with environmental responsibility on the project are competent to perform their environmental duties. Training is provided to personnel with specific environmental responsibilities. This may include but is not necessarily limited to training in the areas of:

- emergency response;
- erosion and sediment control;
- environmental sampling; and
- environmental auditing.

2.3.2 Induction Training

All Project personnel, subcontractors and consultants will be required to undertake a site induction which will, as a minimum, address the following environmental topics:

- The CEMP and consequences of non-compliance with the CEMP;

- The requirements of due diligence and duty of care;
- Conditions of environmental licences, permits, notifications and approvals;
- Location of significant environmentally and socially sensitive areas and protected ecological communities;
- Incident management procedures (e.g. the action to be taken in emergencies, communication lines and contact details for emergency services and site representatives);
- An overview of the Environmental policy;
- Roles and responsibilities of all personnel in achieving environmental conformance;
- Definition and management of environmental incidents and operation of pollution/ spill control equipment;
- Definition and management of waste and an explanation of a waste minimisation and recycling strategy; and
- Processes for refuelling and the management and use of hazardous substances.

Records of training, competency and qualifications including dates, names and trainer details, will be registered in the Inductions Register and kept with the Project Safety Manager.

Where personnel are visiting, personnel attend a visitor induction.

2.3.3 Site Induction

The Project Manager or delegate conducts inductions in conjunction with the site safety induction prior to any person working on site. This induction process familiarises the staff and workforce with Hanson's commitments and policies, the project site and all specific requirements for the project in terms of safety and environmental controls. These can include, but are not limited to, site specific areas (e.g. environmentally sensitive areas, limits of construction, no-go zones), cultural heritage issues, definition and management of environmental incidents, refuelling, waste management and disposal. The induction will include an overview of the content and intent of the CEMP, including the expectations of staff and subcontractors to comply with the CEMP and environmental legislation and relevant approvals and permits.

Regular visitors and Contractors required to spend time on site unaccompanied, will also be inducted prior to them going onto the site.

2.3.4 Visitor Induction

Visitor inductions are provided for personnel visiting (not physically working on) the Project and where there is minimal potential for environmental harm. All visitors must undergo a visitor's induction. All visitors shall be under the control and supervision of a person who has been fully inducted.

2.4 Organisation and Responsibilities

The management of construction activities in the Glebe Island Project is organised under the control of the Project Manager, as depicted in the *Project Organisation Charts*. The Principal

Contractor will be responsible for the day to day operation of the project, however will be monitored by the Hanson Project team to ensure all requirements are being met.

The roles of the Principal Contractor and its underlying structure may change depending on the internal organisational structure. The Organisational Chart will be finalised once the Principal Contractor is appointed.

2.4.1 Development Manager

The Development Manager is responsible for the overall control of the Project and the CEMP. The Development Manager also:

- ensures resources are made available to enable the Project works to comply with the CEMP and relevant legislation; and
- liaises with the Hanson Project Manager and approval authorities as required.

2.4.2 Principal Risk Manager

The Principal Risk Manager (PRM) is shown in the organisation chart and is a functional member of the Project team and is the Environmental Management Representative for the Glebe Island Project. The PRM should have suitable environmental qualifications to undertake his/her environmental responsibilities.

The PRM has adequate time available to carry out his/her environmental responsibilities and fulfils this role under instruction from the Project Manager.

The PRM is responsible for:

- advising on environmental matters specified in the specifications and conditions of approval;
- liaising with relevant authorities on environmental matters;
- maintaining a register of all environmental management documents for the Contract;
- ensuring that the CEMP is established, implemented and maintained in compliance with the Project Specifications;
- establishing, managing, monitoring and maintaining erosion and sediment controls;
- carrying out regular inspections and auditing of the works to ensure that environmental safeguards are being followed;
- identifying where environmental measures are not meeting the targets set and where improvement can be achieved;
- facilitating environmental induction and Toolbox talks for all site personnel; and
- The PRM is also given the responsibility, authority and independence to require reasonable steps be taken to avoid or minimise unintended or adverse environmental impacts, and failing the effectiveness of such steps, to direct that relevant actions be ceased immediately should an adverse impact on the environment be likely to occur.

2.4.3 Project Manager (Hanson and Principal Contractor)

The Project Manager is responsible to the Development Manager for the formal implementation of the CEMP.

Specifically, The Project Manager is responsible for:

- reviewing, implementing and maintaining the provisions of the CEMP;
- undertaking a review of environmental aspects at the Project Launch;
- ensuring all licenses, permits and approvals are obtained by the responsible entity, copies are kept in the Project Filing System for the duration of the project and any conditions are complied with;
- providing required resources necessary to ensure the CEMP is properly implemented;
- ensuring all personnel are inducted as to the Project environmental requirements prior to commencement on site;
- ensuring suppliers receive the Project environmental induction, or are made aware of the environmental objectives pertaining to them through conditions of contract, as applicable;
- ensuring personnel are adequately trained to undertake their tasks in an environmentally responsible manner;
- ensuring environmental inspections and monitoring is carried out in accordance with the Contract;
- ensuring accurate records are kept of all environmental monitoring and inspections;
- determining if an environmental issue should be recorded as a Non-conformance;
- preparing reports on a monthly basis outlining the works undertaken and the achievements that have been met, as well as identifying those areas where improvements were made;
- attending to environmental emergencies which occur on site after working hours (first point of contact);
- ensuring Monthly Project Environmental Reports on the CEMP compliance are completed and included in the Project Monthly Report to the IRMS Representative;
- ensuring environmental controls identified in the Sub Plans are in place prior to commencement of construction activities;
- undertaking environmental monitoring and inspections in accordance with the requirements of the CEMP;
- initiating remedial works to ensure environmental controls are effectively maintained;
- maintaining records of all monitoring and inspection activities;

- developing and reviewing all erosion, sediment and water pollution plans, controls and measures prior to installation;
- fortnightly inspection and review of all erosion and sediment controls, at a minimum, until the Date of Completion; and
- assistance in Project training regarding Project erosion and sediment control issues.

2.4.4 Principal Contractor Function

The below roles have been included in the structure however this has been summarised as a whole as “Principal Contractor” in the organisational chart. The structure may change once a Principal Contractor is contracted.

2.4.5 Project / Site Engineers

The Project / Site Engineer is responsible to the Project Manager for:

- ensuring all workers and subcontractors under their control are properly inducted and instructed in the requirements of the CEMP pertaining to their part of the work;
- ensuring all work under their control is undertaken in accordance with the CEMP and statutory environmental requirements; and
- identifying, recommending and initiating solutions to any Project environmental risk.

2.4.6 Superintendents

The Superintendent is responsible to the Project Manager for:

- ensuring all workers and subcontractors under their control are properly inducted and instructed in the requirements of the CEMP pertaining to their part of the work;
- ensuring all work under their control is undertaken in accordance with the CEMP and statutory environmental requirements; and
- identifying, recommending and initiating solutions to any Project environmental risk.

2.4.7 Foreman

The Site Foreman is responsible to the Project Manager for:

- ensuring all work under their control is undertaken in accordance with the CEMP and Statutory environmental requirements; and
- identifying, recommending and initiating solutions to any Project environmental risk.

2.4.8 Employees

All project employees are responsible for undertaking their work in accordance with the CEMP and Hanson’s Environmental Policy as directed at their induction and as instructed by their supervisor.

2.4.9 Subcontractors and Suppliers

All subcontractors and suppliers shall be responsible for ensuring that their work or product complies with the Project Environmental Documents. This will be achieved throughout the Project induction and/or contract engagement process.

2.5 Emergency Contacts and Response

In addition to the environmental training, selected staff will be trained in emergency procedures for chemical spills, or other potential incidents, including use of spill kits provided on site. In the event of an emergency the persons/authorities nominated on the Emergency Contact List shall be notified as applicable.

A Hanson delegated person will have the authority to stop or direct works in an emergency situation. Procedures as detailed in the Project Safety Plan and Incident Management Plan will be followed in the event of an emergency.

The Emergency Contacts List, Evacuation Procedure and Emergency Evacuation Plan (Marshalling Areas) is included with, and displayed in accordance with, the procedure in the *Emergency and Crisis Plan*.

Environmental emergency situations are managed in accordance with the Emergency and Crisis Management Plan. Incidents are recorded in the IRMS database.

2.5.1 After Hours Response

Upon becoming aware of an environmental incident outside of normal working hours, the Project Manager or Principal Contractor shall attend the site to determine if any immediate remedial works are required and shall arrange for such works to be completed as soon as possible.

2.5.2 Oil & Fuel Spills

The environmental risks posed by fuel and oil spills will be minimised through the provision of appropriate storage for fuels, oils and chemicals.

Approved hydrocarbon spill kits capable of containing or cleaning up a spill of 100 litres minimum will be strategically located and readily available. Several people trained in the use of the spill kit shall be on site whilst work is being undertaken.

Where safe and practical, the spill kit or other containment measures will be used as soon as possible after an incident. The hydrocarbon spill kit shall be replenished as soon as possible after the event.

Where the use of the spill kit or other containment measures would be ineffective, or the spill is of a scale where it can't be safely handled on site, then the Fire Brigade (spill response unit) will be called in accordance with the Emergency and Crisis Plan.

Approved contractors shall be engaged for the appropriate disposal of soil affected by the spill and residual absorbents.

Transportation and landfill dockets shall be provided to Hanson by the disposal contractor.

2.5.3 Control of Fire

Fire response measures are detailed in the Emergency Preparedness and Response Sub Plan. Relevant fire response contacts have been included in the site's 24 hour Emergency Contact List.

Inducting site personnel in good housekeeping and safe working practices will reduce the risk of fire breaking out.

Where work is undertaken which may involve a risk of fire spreading to adjacent vegetation and/or properties, appropriate preventive measures will be implemented in accordance with the JSEA/SWMS.

If a fire breaks out and cannot be controlled by use of immediate resources (fire extinguisher, hose etc.) the fire brigade will be requested to attend.

The affected area shall be visually inspected for, and assistance given to, any injured or distressed fauna, but only if it is safe and practical to do so.

2.5.4 Dust Generated On Site

In the event of dust causing a nuisance to surrounding and adjacent properties or roadways, or when directed by the Development Manager to cease work, the following procedure will be followed:

- The Project Manager shall halt works and plant movement immediately to prevent further dust from being generated;
- A water cart shall be used to spray the area where the dust generation has occurred, or stockpiles shall be covered or dampened as necessary;
- Where possible, working operations shall be relocated to another section of the site, provided that wind/weather conditions are favourable;
- Where a complaint is received from any adjoining property owner, the property shall be inspected by the delegated personnel and corrective actions determined;
- Details shall be recorded in the IRMS Database; and
- Work shall not resume in the affected area until conditions ensure visible dust will not escape the confines of the site.

3. Existing Environment

3.1 Overview

The Project is located on the southern end of Glebe Island; approximately 2.2 kilometres east of the Sydney CBD. The Project Site lies to the north of, but adjacent to the Glebe Island Bridge, now not in use, which runs parallel to the Anzac Bridge.

Glebe Island is a flat, roughly triangular concrete site, with two wharf edges fronting onto White Bay to the north, and Johnstons Bay to the east. Uses include industrial, port and maritime such as receiving cargo from ships (e.g. sugar, grain, and cement), with former uses including an abattoir and grain storage.

The White Bay waterfront areas to the north of Glebe Island are dominated by industrial wharf developments and the White Bay Cruise Terminal on the north-eastern edge. Behind (to the north) of the northern edge of White Bay lie the suburbs of Rozelle, Balmain and Balmain East. Development in these suburbs predominantly comprises medium to low density housing, with pockets of commercial or mixed use development and small parks.

To the east of the Project Site, the eastern wharf edge of Glebe Island fronts Johnstons Bay. The eastern waterfront edge comprises a mix of parklands and high density residential development (Jacksons Landing), which rises with the land to Pyrmont. Tall residential buildings look out onto Glebe Island and the Anzac Bridge.

3.2 Construction Activities

The works which are the subject of this plan will involve the following:

- office building, driver's room & amenities and plant control centre;
- Six (6) 4,333 tonne aggregate storage silos, plant building and monorail crane;
- water tanks, weigh bridges, weigh hoppers and slump conveyors;
- truck and car parking area; and
- a building to house batching activities.

In order to construct the batching plant the following construction works will be undertaken:

- Fill operation for the ramps leading up to the drive over bins;
- Concrete foundations for the silos, batching area, site office & aggregate storage areas;
- Erection of the plant facilities including silos, batching area, aggregate delivery area, conveyor, weigh bins and plant control office;
- Construction of roads, pathways & landscaping areas.

All works will be contained inside the designated site with the exception of the ship aggregate receipt bin.

3.3 Objectives and Targets

Implementation of this CEMP provides the overall strategy for achieving the Project environmental objectives and targets (refer Section 2). Environmental objectives and targets are reviewed on a regular basis and/or when there is a major change in construction activities, to ensure compliance.

Performance is monitored through site inspections, monitoring, the completion of audits, management reporting and management reviews as described further in the related sections of this CEMP. Performance is reporting through audits and the Project's monthly environmental report.

Should targets not be achieved, a non-conformance will be raised; control measures reassessed, staff trained (if required) and the CEMP updated to reflect any relevant changes.

Changes to environmental requirements as effected by legislative or regulatory changes will be monitored by the Regional Risk Manager and through regular contact with the Project Manager and Development Manager.

3.4 Environmental Policy & Commitment

Hanson's Policies are available on the Hanson Construction Materials website: <http://www.hanson.com.au/Sustainability.aspx>. Within the policies, the Commitment to Sustainability in combination with the Environmental Management defines the company environmental policy.

3.5 Relevant Legislation and Guidelines

The Project's works must comply with the Department of Planning and Environment's (DP&E) Conditions of Approval (CoA) for the Construction of a Concrete Batching Plant, assessed under Part 4 of the EP&A Act 1979 legislation (pending DA approval). Other policies and plans under the EP&A Act 1979 relevant to the project works are contained in **Table 3** below:

Table 3: Project Specific Policies and Plans

Legislation	Summary
<i>State Environmental Planning Policy 2005</i>	The Project's works must comply with <i>Part 2 – State Significant Sites</i> from this policy under section 6-6C of the EP&A Act 1979
<i>State Environmental Planning Policy 2011</i>	The Project's works must comply with: <ul style="list-style-type: none"> - <i>Part 2 – State Significant Development</i> and - <i>Part 4 – Regional Development</i> from the policy as under section 89C of the EP&A Act 1979
<i>State Environmental Planning Policy 2007</i>	The Project's works must comply with the <i>Infrastructure</i> policy under the EP&A Act 1979
<i>State Environmental Planning Policy No. 33</i>	The Project's works must comply with the <i>Hazardous and Offensive Development</i> policy under the EP&A Act 1979
<i>State Environmental Planning Policy No.55</i>	The Project's works must comply with the <i>Remediation of Land</i> policy under the EP&A Act 1979

Legislation	Summary
<i>Leichhardt Local Environmental Plan 2013</i>	The Project's works must comply with the policy under the EP&A Act 1979
<i>Sydney Regional Environmental Plan No. 26</i>	The Project's works must comply with the <i>City West</i> policy under the EP&A Act 1979
<i>Sydney Regional Environmental Plan 2005</i>	The Project's works must comply with the <i>Sydney Harbour Catchment</i> policy and Part 3 – Foreshores and Waterways Development Control Plan under the EP&A Act 1979

4. Identify and Assess

4.1 Air Quality

Description

Air quality can have major impacts on human and environmental wellbeing. Management principles are designed to reduce and control the effects of air pollution generated from site activities on adjacent receptors, travelling public, workers and flora and fauna.

Roles:

Project Manager, Foreman, Project Personnel

Mitigation measures

- Water spray exposed areas during windy and dry conditions;
- Exposed areas works must be stabilised as soon as possible to minimise air and water quality impacts;
- All vehicles that carry loads that may generate dust will be covered;
- All stockpiles will be stabilised prior to the completion of works each day;
- Construction plant and equipment will be turned off when not in use;
- All construction equipment will be well maintained and on good working condition to minimise emissions to air;
- Restrict vehicle movements to the minimum necessary to undertake the works; and
- Limit traffic movements and speeds on exposed surfaces.

4.2 Noise & Vibration

Description

Construction noise impacts in these areas will be temporary and generally restricted to standard working hours, unless otherwise required by the service provider. Management principles are designed to reduce and abate the effects of noise generated on adjacent receivers.

Roles:

Project Manager, Foreman, Project Personnel

Mitigation measures

- Schedule construction activities such that concurrent operation of plant is limited;
- Where relevant, inform potentially affected residences in advance as to the extent and timing of potentially noisier construction activities and responsibly advise when noise levels during such works may be relatively high;

- Where known to be readily available, deploy plant having lower noise emission levels;
- Properly maintain plant to ensure rated noise emission levels are not exceeded;
- A contact telephone number will be provided via which public may seek information or make a complaint. A log of complaints should be maintained and actioned by the site superintendent in a responsive manner;
- Undertake construction activities as guided by Australian Standard (AS) 2436-1981;
- Ensure that construction activities are only undertaken between the hours specified in the consent;
- Non-tonal reversing beepers or smart alarms must be fitted and used on all construction vehicles and mobile plant regularly used on site and for any out of hours work, unless a safety risk assessment requires a tonal beeper;
- Where practicable, locating site facilities, offices and storage containers in areas where they provide additional shielding to residents and other sensitive receivers;
- Orient plant and equipment away from residential or other receivers;
- Position items of noisy plant and equipment as far apart as is practicable from each other;
- Ensure that where options exist, use least noisy construction methods, vehicles, plant and equipment;
- Design the work site to minimise the need for truck reversing movements;
- Switch off plant and equipment that is idling unnecessarily, especially during out of hours works;
- Use silenced generators and compressors;
- Prevent vehicles and plant queuing and idling outside the site prior to the morning start time;
- Noisy activities during standard working hours must be planned, where possible, for parts of the day when they will have the least impact;
- Plant and equipment must be shut down when not in use;
- Machinery used for the works must be maintained on good condition for the duration of the works.

4.3 Soil, Contamination and Water Quality Management

Description

Construction activities have the potential to cause negative impacts to the soil and water quality in the surrounding environment if the construction activities and methods are not managed appropriately. Management principles are designed to prevent the pollution of soils and receiving waters.

Roles:

Project Manager, Foreman, Project Personnel

Mitigation measures

- Erosion and Sediment Control Plans (ESCP) will be prepared in accordance with “Managing Urban Stormwater – Soils and Construction” (Landcom, 2004) and implemented for each works location to reduce potential soil and water quality impacts during the works;
- ESCP to be implemented as far as practicable before the work starts (progressive implementation of erosion and sediment controls may be required);
- Excavated material will be placed in designated stockpile areas more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas;
- Stockpiles will incorporate water management controls designed to direct any stockpile water runoff to sediment control systems and divert “clean” stormwater around stockpiles and exposed areas;
- Areas to be disturbed at any one time will be minimised;
- Water runoff generated from the construction site will be intercepted and treated (e.g. Sediment filters and traps, etc.). Sediment and erosion controls will be installed prior to works commencing and maintained in an effective condition until earthworks have been completed and construction areas rehabilitated;
- If groundwater is encountered, the water will be pumped out by a licenced waste contractor or discharged off-site if it is of suitable quality;
- Stormwater runoff from the site will be tested during construction for pH (6.5 – 8.5) and turbidity (50ppm - TSS). If water quality monitoring indicates that these parameters are exceeded, additional water quality monitoring may be undertaken and a site audit carried out to identify the source of the pollutant;
- Excavated materials to be disposed off-site will be classified in accordance with the NSW DECCW’s Waste Classification Guidelines, 2008;
- Machinery will be checked daily to ensure there are no leakages of oil, fuel or other liquids;
- If there is potential for acid sulphate soils to be encountered, eg through modification of the design or construction methodology, approval from BMCC would be sought and an Acid Sulphate Soils Management Plan would be prepared;
- The management of any unexpected contamination will be in accordance with the Contaminated Sites: Guidelines for Consultants Reporting on Contaminated Sites (EPA, 1997);
- Control of fuels, oils and other chemicals will be undertaken in accordance with DECCW’s Bunding and Spill Management Guidelines and any relevant legislation or Australian Standard;

- Re-establish ground cover or stabilise areas that have been disturbed, progressively and once the work is complete;
- Monitor weather forecasts, current weather from on-site meteorological station, and plan works accordingly;
- All concreting works must be undertaken in accordance with the DECCW's Environmental Best Management Practice Guideline for Concreting Contractors, including installing concrete washout facilities where necessary. Wash out facilities will be large enough to ensure that there is adequate capacity, bunded and sealed with either plastic or geotech material, at a minimum;
- Machinery will be checked before being used onsite through plant risk assessment, and daily during plant pre-starts checks; and
- Vehicle loads will be covered to prevent the release of material.

The following mitigation measures will be implemented to manage spillage prevention, containment and clean-up:

- Storage and handling of chemicals must be in accordance with the Safety Data Sheets;
- Temporary bunding is required, particularly in any location with direct drainage to a waterway or environmentally sensitive areas, to manage any spillage of a chemical, fuel or lubricant;
- Refuelling operations should be undertaken away from drains and watercourses and must not be left unattended;
- Adequate quantities of spill control materials (spill kits and others) must be kept readily available;
- In the event of an accidental spillage, spilled materials will be controlled, contained and cleaned up as soon as practicable;
- Spill materials will be disposed of appropriately;
- Impervious bunds for storage must be of sufficient capacity to contain at least 120% of the stored chemicals. The total chemicals/fuels stored on site will be limited to those required for immediate construction activities only;
- Bunds will be monitored during the weekly checklist inspection and any required maintenance and decanting will be directed by the Project Manager;
- Mobile generators or pumps will be placed in an appropriately bunded location while deployed onsite;
- Maintenance and cleaning of plant and equipment will be carried out on hardstand areas with appropriate controls; and
- Plant and equipment will be routinely checked for leaks and any required clean-up and repair promptly actioned.

4.4 Flora and Fauna

Description

Certain flora and fauna species are protected under the NSW State legislations:

- *National Parks & Wildlife Act 1974;*
- *Threatened Species Conservation Act 1995;*
- *Fisheries Management Act 1994;* and
- *Biosecurity Act 2015.*

The Commonwealth Legislation protects certain flora, fauna and fish species that are threatened nationally through the:

- *Environment Protection Biodiversity Act 1999 (EPBC Act).*

Roles

Project Manager, Foreman, Project Personnel

Mitigation measures

- Minimise unnecessary intrusion into the adjacent waterway during construction so as to minimise impacts upon marine species and habitats;
- If it is perceived that significant impacts are occurring to marine environments within the vicinity of the work area (e.g. spill of any chemicals), works at that location should cease and contact environment personnel for advice;
- If unexpected threatened flora or fauna species are discovered, stop works immediately and contact environment personnel for advice;
- WIRES should be consulted if any injured fauna are encountered; and
- where practical, the Project Manager should seek to retain vegetation present within and around the proposal area.

4.5 Waste

A general environmental duty of care exists to manage and control waste materials. The OEH Waste Management Hierarchy will be implemented for the construction and demolition: avoidance of unnecessary resource consumption, resource recovery (including reuse, reprocessing, recycling and energy recovery), and disposal.

The following will be adhered to:

- Protection of the Environment Operations Act 1997;
- Waste Avoidance and Resource Recovery Act 2001;
- Protection of the Environment Operations (Waste) Regulation 2005;

- Protection of the Environment Operations (General) Regulation 2009; and
- DECCW Waste Classification Guidelines.

Roles:

Project Manager, Foreman, Project Personnel

Mitigation measures

- Waste generated during construction and demolition activities to be disposed in accordance with the Waste Classification Guidelines 2008 and an appropriately licenced facility;
- Waste generated on-site to be contained within the site compound until opportunities for reuse are available;
- Wastes to be separated into recyclable and non-recyclable materials and stored in appropriate containers, with recyclables sent for recycling;
- Waste that cannot be reused or recycled to be regularly disposed to an appropriately licenced facility and disposal dockets to be obtained;
- All working areas to be maintained and cleaned up on a regular basis;
- All demolition work to be carried out in accordance with AS2601-2001: The Demolition of Structure;
- All concrete trucks used during the construction only allowed to wash out on the site in a designated washout facility or directed to return to the batch plant depot for washing out; and
- The Waste Management Plan (Appendix C) is to be complied with at all times.

4.6 Heritage

Description

Management of Aboriginal and Torres Strait Islander cultural heritage is a statutory requirement. Cultural heritage is defined as areas, objects and places displaying archaeological or historic significance. This includes objects situated on or under the surface of the land. In addition, the EPBC Act 1999 lists Commonwealth interests as issues in Environmental and Cultural Heritage management.

There are three heritage items located adjacent to the Site. The Glebe Island Silos are located over 100 metres away to the west of the project area, and are therefore considered to be outside of the impact area associated with this project. The Glebe Island Bridge and the White Bay Power Station are not likely to be impacted directly from the Project, however, there are associated view corridors to and from each item that the Project will have to consider.

Roles

Project Manager, Foreman, Project Personnel

Process

In the event that items of aboriginal or European heritage significance are uncovered during construction, work must cease and advice should be sought from the Office of Environment and Heritage, as applicable.

Duty of Care

Project Personnel will take all reasonable care not to damage items of indigenous cultural heritage if found during the Utility Connection works. Duty of care exists under the *Heritage Act 1977* legislation for non-indigenous heritage and requires prevention of damage unless instructed otherwise to proceed.

Discovery of Heritage Items

When any heritage item is discovered during construction, the following steps will be taken:

1. Work will cease and care taken to minimise further disturbance;
2. The Supervisor will be notified immediately, who will then report the find to the Development Manager;
3. The area will not be disturbed until an assessment is completed, an inspection undertaken and direction to proceed from Office of Environment and Heritage;
4. The exact location of the discovery will be photographed; and
5. All relevant management measures to protect the site will be implemented, eg. Restrict access to the area to prevent further disturbance, erect barriers and proceed with protective measures.

4.7 Stakeholder & Community Consultation

Description

Community management which includes, amongst other things, protocols for the distribution of letters informing the community of construction events, and contact details for further information, or the registration of complaints.

The Hanson Project Manager shall notify the Development Manager of all site environmental issues, concerns and complaints.

Complaints from other parties shall be directed to the Project Manager for investigation.

All relevant environmental issues, concerns and complaints including the following, are to be entered into the IRMS database:

- date and time;
- location;
- apparent cause;
- corrective action, if relevant; and
- other relevant information.

Completed corrective actions shall be documented in the IRMS database.

Copies of the report shall be distributed to the relevant parties indicated on the report.

Within one working day of receiving a complaint about any environmental issue, including noise and other pollution, arising from the Project works, a written notification will be submitted in the IRMS database, which will distribute to the Development Manager. The Risk Report raised in the IRMS database is to be closed out with the proposed measure to prevent the occurrence of a similar incident, within five working days.

A summary of complaints, issues and concerns will be provided in the project monthly report to the Development Manager. A register of all complaints about any environmental issues will be kept for the duration of the Project.

Roles

Development Manager, Project Manager, Site Engineer, Foreman, Project Personnel

Mitigation Measures

- A contact telephone number will be provided which the public may seek information or make a complaint. A log of complaints should be maintained and actioned by the site superintendent in a responsive manner; and
- Where relevant, inform potentially affected residences in advance as to the extent and timing of potentially noisier construction activities and responsibly advise when noise levels during such works may be relatively high.

4.8 Public & Visual Amenity

Description

Any visual impacts resulting from the works will be localised, of short duration and are not expected to be significant. In addition to stakeholder and community consultation, public and visual amenity will be protected by the implementation of appropriate mitigation measures.

Roles

Project Manager, Site Engineer, Foreman & Project Personnel

Mitigation Measures

- Construction works to be completed within the shortest possible timeframe;
- All waste generated to be removed from the site as soon as practical and disposed of in accordance with the NSW Waste Classification Guidelines to an appropriately licenced facility;
- All surfaces damaged by the proposed works to be replaced, repaired, reinstated, or otherwise restored to a pre-existing or better condition prior to operations commencing; and
- The site is to be maintained in an orderly manner.

4.9 Traffic

Description

All construction vehicles will use designated truck routes to access the site via James Craig Road. All traffic associated with the works will be managed under the Traffic Management Plan developed for the Construction and Demolition phases of the Project.

Roles

Project Manager, Site Engineer, Safety Manager, Foreman, Site Personnel

Mitigation Measures

- The minimum length and width of road practicable will be closed during road crossings to minimise the disruption and inconvenience to road users whilst maintaining working efficiency;
- Road construction signs and devices will be placed before work begins. The signs and devices will be clearly visible to road users and not obscured by vegetation, vehicles, plant or other signs and devices and will be displayed in the correct sequence;
- Signs and devices will be used to warn, inform and guide road users safely around, past or through work areas and removed at the completion of the work;
- Work will be arranged so that workers are able to work safely and workers and road users are separated wherever possible;
- Work will be staged to ensure minimum disruption to traffic, especially at peak times;
- Pedestrian flow will be managed through the erection of suitable barriers and signs;
- Hanson will obtain a "Road Opening Permit" from Council prior to commencement of any work on Council property; and
- Local side streets will not be used during the construction works.

5. Consult and Communicate

Description

Communication with the work force and other Project Personnel on environmental issues is necessary to ensure compliance during work activities.

Roles

Project Manager, Site Engineer, Project Personnel, Foreman

Process

5.1 Environmental Toolbox Training

A Toolbox talk involves the dissemination of information to Project personnel at the field level. Generally Toolbox talks focus on safety aspects with reference to certain Project jobs or tasks. They can be used to disseminate environmental management information.

Environmental Toolbox talks will cover aspects such as:

- Explanation of new Project requirements;
- Explanation of the key environmental risks associated with an activity or specific procedures which could have potential environmental impacts;
- Explanation of mitigation strategies with reference to an activity or specific procedures which could have potential environmental impacts;
- Reminder of the importance of specific or generic environmental commitments;
- Obtaining feedback related to environmental issues;
- Changes in work process as a result of incident management; and
- Any other purpose related to the implementation of the CEMP.

Toolbox training will help to ensure that relevant information is communicated to the workforce and will also provide a forum for feedback on issues of interest or concern. Toolbox training will generally be prepared and delivered by a representative of the Environmental Management Team but may also be delivered by other authorised persons.

5.2 Work Procedure Training

All personnel that have specific responsibility for implementing the CEMP or its Sub Plans are trained in the relevant work procedures prior to undertaking the activity. Work procedure training is recorded in the training attendance record.

6. Review and Monitor

6.1 Monitor, Review & Improve

The key activities of the Project that may have a significant impact on the environment are monitored on a regular basis.

A range of information is documented to enable performance to be monitored. Detailed records of all environmental inspections and performance checks are maintained.

6.2 Inspection and Surveillance

In addition to the specific environmental monitoring set out in the Environmental Management Sub Plans, the following environmental inspections are undertaken:

- The Principal Contractor as part of their daily duties conduct inspections of the Project (including all subcontractor activities). Only unresolved issues are noted in their daily diaries and communicated to the Project Manager for inclusion in the IRMS database; and
- The EM/EO conducts formal inspections of the Project. An Environmental Inspection Checklist is developed to ensure compliance with the CEMP and that conditions nominated in license/permits/approvals are assessed. Actions arising from environmental inspections are recorded, tracked, communicated and closed out in accordance with the procedure detailed in **Figure 2** below.

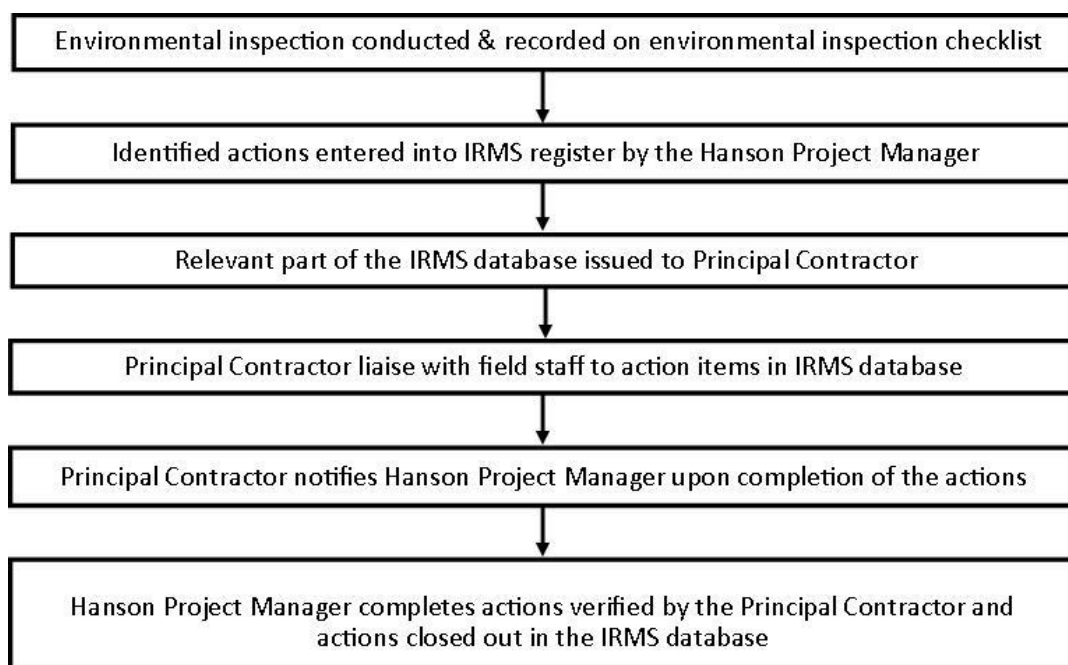


Figure 2: Procedure for Environmental Inspection

6.3 Environmental Sampling

Environmental sampling will occur as set out in the CEMP Sub Plans. Environmental sampling involves collecting and interpreting data to verify the effectiveness of the CEMP and environmental control measures. All environmental sampling details are contained in the

relevant sub plans. Where sampling results are outside the nominated acceptance criteria, an incident report or non-conformance is raised in the IRMS database.

6.4 Incident Reporting and Investigation

Incidents and Emergencies shall be managed in accordance with the *IRMS* guidelines document.

These detail how to:

- prevent and/or prepare for emergency situations;
- respond in the event of different emergency scenarios;
- notify required persons;
- report; and
- undertake incident investigation.

Where required, the *Emergency and Crisis Management Plan* may be enacted for major or extreme incidents.

A record of all incidents is recorded in Hanson's IRMS database.

6.5 Environmental Alerts

As part of Hanson's commitment to environmental hazard identification, control and improvement, an Environmental Alert System is utilised. When an incident occurs or a potential hazard is identified externally or internally, an alert may be developed.

Alerts are distributed through email and printed off at each site and placed on site notice boards and communicated to the Project team at Toolbox meetings. The Environmental Alert identifies the key issues relating to the incident or hazard, the controls that are to be put in place to ensure the incident or hazard does not reoccur and key learning's from the event.

The Hanson Regional Risk Manager is responsible for preparing and disseminating alerts within four weeks of the incident or hazard.

Appendix A – Erosion and Sediment Control Plan

Appendix B – Traffic Management Plan

Appendix C – Waste Management Plan