

Soil and Water Management Plan

Project Details

Project Name: Barangaroo Cutaway Cultural Facility

Project Number: 200290

Project Location: 1 Merriman St, Barangaroo NSW 2000

Client: Infrastructure NSW

Name of principal contractor: FDC Construction (NSW) Pty Limited

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Revision Date	REVISION DESCRIPTION	PM's INITIALS (revision approval)
11/04/2024	Barangaroo Cutaway – Revision 1	HP
23/04/2024	Barangaroo Cutaway – Revision 2	JK
26/04/2024	Barangaroo Cutaway – Revision C1	HP
04/02/2025	Barangaroo Cutaway – Revision C2 – 6-Monthly Review	HP

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GLOSSARY / ABBREVIATIONS

CoA	Minister's Conditions of Approval
ANZECC	The Australian and New Zealand Environmental Conservation Council
ASS	Acid Sulfate Soils
AQMP	Air Quality Management Plan
EMP	Environmental Management Plan
SWQMP	Soil and Water Quality Management Plan
WMP	Waste Management Plan
DEC	Department of Environment and Conservation
DECCW	Department of Environment, Climate Change and Water
DP&E	Department of Planning and Environment
DLWC	Department of Land and Water Conservation
DNR	Department of Natural Resources
DPI	Department of Primary Industries (Fishing and Aquaculture)
DSEWPC	Department of Sustainability, Environment, Water ,Population and Communities
EA	Environmental Assessment
EEC	Endangered Ecological Community
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
EPL	Environment Protection License
EPBC Act	<i>Commonwealth Environment Protection and Biodiversity Conservation Act 1999</i>
ER	Environmental Representative
EWMS	Environmental Work Method Statement
FM Act	<i>Fisheries Management Act 1994</i>
NOW	NSW Office of Water
OEH	Office of Environment and Heritage
PASS	Potential Acid Sulfate Soils
PESCP	Progressive Erosion and Sediment Control Plan
POEO Act	<i>Protection of the Environment Operations Act 1997</i>
RMS	Roads and Maritime Services
Secretary	Secretary of the Department of Planning and Environment
SDS	Safety Data Sheet
Water Act	<i>Water Act 1912</i>
WM Act	<i>Water Management Act 2000</i>

1 Introduction

1.1 Purpose

- a) This Soil and Water Quality Management Plan (SWQMP) describes how FDC will manage potential environmental impacts on surface and groundwater during construction.
- b) This SWQMP has been prepared to address the requirements of applicable guidelines and legislation.

1.2 Background

- a) FDC have assessed the impacts of construction and operation of the Project on soil and water quality.
- b) The implementation of the mitigation measures in this SWQMP will assist the substantially reduce the potential impacts on surface and groundwater quality in the Project area.

2 Legal and Other Requirements

2.1 Legislation

- a) Legislation relevant to soil and water management includes:
 - i. Environmental Planning and Assessment Act 1979 (EP&A Act)
 - ii. Environmental Planning and Assessment Regulation 2000
 - iii. Protection of the Environment Operations Act 1997 (POEO Act)
 - iv. Water Management Act 2000 (WM Act)
 - v. Fisheries Management Act 1994 (FM Act)
 - vi. Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)
 - vii. Water Act 1912 (Water Act)

2.2 Guidelines

- a) The main guidelines, specifications, and policy documents relevant to this SWQMP include:
 - i. Acid Sulfate Soil Manual (ASSMAC 1998)
 - ii. *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC and ARMCANZ 2000)
 - iii. *National Water Quality Management Strategy* (NWQMS) (Department of Sustainability, Environment, Water, Population and Communities (DSEWPC), 1994)
 - iv. *NSW Water Quality and River Flow Objectives* (DECCW, 2006)
 - v. Department of Environment and Conservation (DEC): *Bundling & Spill Management. Insert to the Environment Protection Manual for Authorised Officers – Technical section “Bu” November 1997*
 - vi. *Managing Urban Stormwater: Soils and Construction*. Landcom, (4th Edition) March 2004 (reprinted 2006) (the “Blue Book”). Volume 1 and Volume 2.
 - vii. DLWC, 1998. *Construction Wetlands Manual*
 - viii. *Approved Methods for the Sampling and Analysis of Water Pollutants in NSW* (EPA, March 2004)
 - ix. *Guidelines for the Management of Acid Sulfate materials: Acid Sulfate Soils, Acid Sulfate Rock and Monosulphidic Black Ooze* (RTA 2005)
 - x. The relevant targets within the *State Water Management Outcomes Plan* (NOW, 2003)
 - xi. *State Groundwater Policy Framework Document* (Department of Land and Water Conservation (DLWC), 1997)
 - xii. *The NSW State Groundwater Quality Protection Policy* (DLWC, 1998)
 - xiii. (Draft) *NSW State Groundwater Quantity Management Policy* (DLWC, n.d.)
 - xiv. *NSW State Groundwater Dependent Ecosystems Policy* (DLWC, 2002)
 - xv. *National Water Quality Management Strategy Guidelines for Groundwater Protection in Australia* (Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ) and ANZECC, 1995)
 - xvi. *Guidelines for the Assessment and Management of Groundwater Contamination* (NSW DEC, 2007).

3 Existing Environment

The proposal is located under the Barangaroo Reserve within the City of Sydney Local Government Area (LGA). The extent of the Cutaway is shown in Figure 2 below and is approximately 6,500m². It is bounded by Wulugul Walk to the north and west, Merriman Street to the east, and Munn Street to the South.

The proposal is approximately 250m north of Central Barangaroo. A summary of the surrounding development is provided below:

- **North and West:** The site is bounded by Wulugul Walk which is a 300-metre-long and 15-metre-wide shared walking and cycling path. It is a part of an 11-kilometre harbourside walk from Woolloomooloo to the Anzac Bridge.
- **East:** The site is bounded by Merriman Street to the east with a range of low-density residential buildings.
- **South:** Immediately south of the site is the Munn Street Reserve with plenty of shaded seating and lush green areas.



An existing stormwater network is located at ground level along the eastern end of the site that collects runoff from falling onto the slab through the open roof void (open to the sky). It runs from the northern end falling to the south along the eastern wall before eventually connecting to a stormwater pit located south of the site within proximity to the Nawi Cove entrance. This stormwater pit eventually discharges to the harbour.

The existing stormwater network is shown schematically in Figure 3. The scope of works that affects the stormwater is limited to the eastern side of the development where the new works is being proposed.

4 Environmental Aspects and Impacts

- a) The key construction activities and the associated potential sources of erosion, sedimentation and water pollution were identified through a risk management approach. The consequence and likelihood of each activity's impact on the environment was assessed to prioritise its significance. The results of this risk assessment are included in the PMP and Environmental Risk Assessment (F010).

5 Environmental Mitigation Measures

Specific mitigation measures to address impacts on soil and water quality are outlined in Table 1 below:

Mitigation Measure		Responsibility	Complete
5.1 General			
SWQMP1	Engage a specialist soil conservationist where required to provide expert assistance with key aspects of design of the erosion and sediment controls both before and during construction.	Site Manager	X
SWQMP2	Install erosion and sediment controls in all construction areas where soil disturbance is going to occur, prior to soil disturbance occurring.	Site Manager, Project Engineers, Foreman	X
SWQMP3	Install all erosion and sediment controls in accordance with the <i>Erosion and Sediment Control Plan (ESCP)</i> included in Appendix A of this plan.	Site Manager, Project Engineers, Foreman	X
SWQMP4	Consult relevant government agencies in relation to control measures in watercourses and creeks and the design of waterway crossings (e.g. NSW Office of Water, DPI (Fishing & Aquaculture), Office of Environment and Heritage).	Site Manager	X
SWQMP5	Prepare Progressive Erosion and Sediment Control Plans (PESCPs) prior to commencing each stage or parcel of work. Prepare, review and issue the PESCPs in accordance with the <i>Project Document and Data Control Procedure</i> to ensure their currency and relevance at all times.	Site Manager, Project Engineers	X
SWQMP6	Implement appropriate erosion and sediment control measures for each particular section of works in accordance with the PESCP, prior to the commencement of any clearing, stripping or earthworks.	Project Engineers Foreman	X
SWQMP7	Install hydraulic structures and controls (i.e. clean and dirty water diversion drains, pipes and culverts) early (i.e. prior to clearing and stripping) to promote successful erosion and sediment control during construction (principally, during clearing, stripping and earthworks).	Project Engineers Foreman	X
SWQMP8	The Site Project Team will monitor weather conditions and forecasts (including rainfall prediction maps) daily and pass on relevant information to the Site Superintendent / Foremen to allow for adequate planning for significant rain events.	Site Manager	X
SWQMP9	Implement relevant documentation and systems for recording erosion and sediment control activities in accordance with the procedure for site environmental inspections outlined in the PMP.	Site Manager	X
5.2 Minimising Disturbance			
SWQMP10	Establish clearing limits and work boundaries that are well defined using barrier tape (or equivalent) prior to any construction, clearing or stripping works commencing.	Site Manager, Project Engineers, Foreman	X
SWQMP11	Minimise the extent of clearing as much as possible.	Project Engineers, Foreman	X
SWQMP12	Clearly mark all vegetation that is to be retained.	Site Manager, Project Engineers, Foreman	X

Mitigation Measure		Responsibility	Complete
SWQMP13	Clear land progressively and clear the areas associated with the current section / stage of works only.	Project Engineers, Foreman	X
SWQMP14	Initially clear and grub leaving the soil surface in a reasonably rough condition with some surface vegetative cover.	Project Engineers, Foreman	X
5.3 Drainage Control			
SWQMP15	Maximise the separation of 'clean' (offsite) run-on water from 'dirty' (onsite) (e.g. turbid) construction area runoff as much as possible.	Site Manager, Project Engineers, Foreman	X
SWQMP16	Construct drainage structures early in the project including: - Catch drains, and - Culverts / pipes and associated inlet and outlet protection (e.g. dissipaters)	Project Engineers, Foreman	X
SWQMP17	Maximise the diversion of turbid construction runoff into sediment traps.	Project Engineers, Foreman	X
SWQMP18	Control runoff during the construction of embankments (e.g. fill shaping and the construction of temporary dykes and batter drains).	Project Engineers, Foreman	X
SWQMP19	Divert formation runoff into pits and the stormwater drainage system as soon as practical to reduce surface flow lengths.	Project Engineers, Foreman	X
SWQMP20	Divert off site run-on water around the works site as much as possible. Use permanent cut-off drains to achieve this as much as possible.	Project Engineers, Foreman	X
SWQMP21	Maintain slope lengths at appropriate lengths (refer to the standard drawings in the Primary ESCP) to slow flows down and minimise erosion. Use catch drains to collect and divert runoff from the slopes.	Project Engineers, Foreman	X
SWQMP22	Use geotextile linings to provide temporary surface protection in areas where appropriate (e.g. batter drains, culvert construction).	Project Engineers, Foreman	X
SWQMP23	Use check dams within diversion drains where required to slow flows down and minimise erosion within the drains.	Site Manager, Project Engineers, Foreman	X
SWQMP24	Locate stockpiles in accordance with the <i>Stockpile Management Protocol</i> included in Appendix C of this SWMP to ensure that e.g. the number of stockpile sites is minimised, and stockpiles are at least 50mm from a waterway.	Project Engineers, Foreman	X
5.4 Erosion and Sediment Control			
SWQMP25	Undertake progressive stabilisation of ground surfaces as they are completed rather than at the end of the works program.	Project Engineers, Foreman	X
SWQMP26	Where using cover crop species to progressively revegetate disturbed areas, use native plants similar to those found in the surrounding area.	Project Engineers, Foreman	X
SWQMP27	Immediately commence stabilisation of waterways, including their beds and banks, after the completion of any works within these areas. All stabilised areas to mimic a naturalised creek system and the disturbed areas are planted with native species.	Project Engineers, Foreman	X
SWQMP28	Control dust through progressive revegetation techniques and by watering unsealed areas.	Project Engineers, Foreman	X
SWQMP29	Use temporary ground covers such as soil stabilisers (e.g. Gluon polymer emulsion), hydroseed or hydro mulch as much as possible to stabilise batters, stockpiles and large surface areas.	Project Engineers, Foreman	X
SWQMP30	Construct sediment control measures as close to the potential source of sediment as possible.	Site Manager, Project Engineers, Foreman	X

Mitigation Measure		Responsibility	Complete
SWQMP31	Control the tracking of mud and soil material onto local roads using shakers, rubble pads or washdown areas.	Foreman	X
SWQMP32	Provide sediment fencing or equivalent downslope of disturbed areas that can't be directed into a designated sediment trap or bund unless completely impractical (e.g. Works within watercourses). Implement alternative controls (i.e. sit curtains and enhanced erosion controls) in these locations.	Site Manager, Project Engineers, Foreman	X
SWQMP33	Use mulch bays or straw bales as alternatives to sediment fencing where appropriate. Do not use mulch in concentrated flow areas or where it has the potential to result in tannin leachate into waterways.	Site Manager, Project Engineers, Foreman	☐
SWQMP34	Treat water accumulating within any excavation, trap or low point on site that cannot be re-used in construction or dust suppression.	Site Manager, Project Engineers, Foreman	X
SWQMP35	Install sediment controls around stormwater inlet pits where appropriate and where they won't cause or exacerbate flooding. Consider traffic management and safety if installing such devices on live traffic roads.	Site Manager, Project Engineers, Foreman	X
SWQMP36	Remove sediment controls only after adequate stabilisation of disturbed surfaces is achieved.	Site Manager, Project Engineers, Foreman	X
SWQMP37	Carry out dust suppression whenever necessary to minimise sediments becoming air borne due to wind erosion. Use site water for dust suppression whenever practicable.	Foreman	X
5.5 Site De-watering and Water Re-use			
SWQMP38	Wherever possible, water detained onsite will be re-used for dust control and other non-potable uses. This includes water accumulating within any excavation, trap, trench or low point on site.	Site Manager, Project Engineers, Foreman	X
SWQMP39	When necessary, sediment will be settled out of any water to be discharged using a flocculent.	Site Manager, Project Engineers, Foreman	☐
SWQMP40	Apply flocculent to settle sediments within 24 hours of the conclusion of the last rainfall event.	Site Manager, Project Engineers, Foreman	☐
SWQMP41	Undertake all dewatering on site in accordance with the Environmental Risk Assessment (F011) located within the PMP. Prepare and implement a <i>Construction Site Dewatering Environmental Work Method Statement</i> to ensure that the waters being discharged meet the specified water quality criteria.	Site Manager, Project Engineers, Foreman	X
SWQMP42	Issue a <i>Dewatering Permit</i> prior to any dewatering on site. EM will liaise with WDA and the Office of Water prior to dewatering and will provide details on expected groundwater inflows. The volume of groundwater likely to be dewatered and whether long term dewatering will be required will be determined.	Site Manager, Project Engineers, Foreman	X
5.6 Stabilisation of Disturbed Areas			
SWQMP43	Commence stabilisation of waterways, including their beds and banks, immediately after the completion of any works within these areas.	Project Engineers, Foreman	X
SWQMP44	Control dust through progressive revegetation techniques and by watering unsealed areas.	Project Engineers, Foreman	☐
SWQMP45	Use temporary ground covers such as soil stabilisers (e.g. Gluon polymer emulsion), hydroseed or hydro mulch as much as possible to stabilise batters, stockpiles and large surface areas.	Project Engineers, Foreman	X
5.7 Management of Contaminated Materials			

Mitigation Measure		Responsibility	Complete
SWQMP46	In the event that contamination is identified, the contingency is to implement the <i>Unexpected Finds Protocol</i> , found in Appendix B of this plan.	Site Manager	X
SWQMP47	Develop a remedial action plan if contamination is found to pose unacceptable risks to the environment or human health. Undertake remediation works in consultation with the EPA.	Site Manager	☐
SWQMP48	Should the presence of ASS (Acid Sulfate Soils) be confirmed, follow <i>ASS Management Procedure</i> in Appendix D of this plan.	Site Manager, Project Engineers, Foreman	X
SWQMP49	Prepare an ASSMP if required, to identify strategies to remove or reduce the risks associated with ASS.	Site Manager	☐
5.8 Surface Water Quality Management			
SWQMP50	Test and, if required, treat water before it is released into the environment from any discharge points. Do not release water until the following parameters are met: - Ph 6.5-8.5 - TSS < 50mg/L - No visible oil or grease	Site Manager	X
SWQMP51	If water is to be re-used for dust suppression or construction purposes, the above criteria do not apply providing water does not leave the site (either directly or indirectly via runoff).	Site Manager	X
SWQMP52	Record and retain the results of any monitoring for at least 4 years after the monitoring or recording event to which they relate took place.	Site Manager	X
SWQMP53	Check weather forecasts daily and implement the <i>Heavy Rainfall Event Procedure</i> included in Appendix D of this plan.	Site Manager	X
SWQMP54	Manage vegetation stockpiles to minimise the impact of tannins leaching into the surrounding environment.	Site Manager, Project Engineers, Foreman	X
SWQMP55	Prior to forecast rainfall events, end-of-day controls will be implemented throughout the worksite to help reduce erosion and control sediment. These will include one or more of the following: - Check dams - Slope breaks - Batter chutes - Temporary ground covers	Site Manager, Project Engineers, Foreman	X
SWQMP56	Prior to forecast rainfall, the Planning and Environment Project Manager or their representative will inspect the site and note any areas requiring additional management measures.	Site Manager, Project Engineers, Foreman	X
SWQMP57	Prior to forecast rainfall, temporary ground covers such as fabrics, mats or polymer sprays will be deployed in high risk areas.	Site Manager, Project Engineers, Foreman	X
SWQMP58	Any areas where a sediment basin should ideally be provided but cannot be installed due to space constraints will adopt enhanced erosion controls. These will be deployed prior to forecast rainfall.	Site Manager, Project Engineers, Foreman	X
5.9 Groundwater Management			
SWQMP59	Should any groundwater be encountered and need to be disposed during construction, disposal would be undertaken in accordance with the Environmental Risk Assessment (F010) located within the CEMP for construction site dewatering.	Site Manager, Project Engineers, Foreman	X
5.10 Management of Other Activities with Potential Water Quality Impact			
Concrete and Saw Cutting			
SWQMP60	Wash concrete mixers. Pumps, concrete tools and other equipment at specially designated washout areas that are constructed in a manner that will prevent stormwater surface run-off from being contaminated.	Site Manager, Foreman	X
SWQMP61	Locate washout areas within an area that is not subject to natural surface stormwater run-off and away from drainage lines. Post signs to advise workers of their location.	Site Manager, Foreman	X

Mitigation Measure		Responsibility	Complete
SWQMP62	Construct the washout areas with an impermeable type material capable of retaining any contaminated water and concrete residue.	Site Manager, Foreman	X
SWQMP63	Monitor the washout areas to ensure that they are not getting over-full and that the washing activity is not contaminating the surrounding area.	Site Manager, Foreman	X
SWQMP64	As part of the project induction program, advise all personnel performing concreting or saw cutting activities of the concrete washout areas and their obligations to: - Clean their plant, tools and equipment within the designated area - Ensure that contaminated water associated with their activities is appropriately controlled and prevented from reaching natural stormwater surface drainage areas.	Site Manager	X
Storage and Handling of Fuels and Chemicals			
SWQMP65	Where practicable, do not locate storage areas within 50m of natural surface drainage areas, storm drainage systems, poorly drained or flood prone areas or any area with a slope steeper than 10%.	Project Engineers, Foreman	X
SWQMP66	Maintain the Safety Data Sheet (SDS) and Hazardous Chemical Register (F086) and copies of all SDS documents in the site office within a special SDS Folder.	Safety Manager	X
SWQMP67	Clearly label, use and handle liquid and dry chemicals (including oils and fuels) in accordance with the instructions provided in the respective SDS document.	Foreman	X
SWQMP68	Keep liquid chemicals and fuels in bunded storage areas or sheds that have the capacity to contain spills from leaky containers or from an incident involving a decanting activity. Ensure the bunded capacity is at least 120% of the total capacity of all containers stored inside the bunded storage area.	Foreman	☐
SWQMP69	Where practicable, locate designated plant refuelling areas, plant / service maintenance areas and concrete / plant wash down areas at least 5m from vegetation and 50m from the following: - A natural surface drainage area, and - A built drainage structure such as a stormwater pipe or culvert.	Foreman	X
SWQMP70	During site induction, advise all personnel of the following: - The location of bunded storage areas, liquid absorbent materials and other spill contaminated materials and kits. - Storage of large quantities of fuel for construction plant is not permitted. - Licensed Fuel Trucks carrying emergency fuel spill kits must be used to service plant and equipment. - All drums and decanted containers must be labelled and stored within bunded areas wherever they are not in use.	Site Manager	X

6 Compliance Management

6.1 Roles and Responsibilities

- a) FDC's Project Team organisational structure and overall roles and responsibilities are outlined below. Specific responsibilities for the implementation of environmental controls are detailed in Table 1 of this SWMP.

Project Director

The soil and waste management plan responsibility for the project is the Project Director which is to :

- Ensure the requirements of this SWQMP are fully implemented, and that environmental requirements are not secondary to other construction requirements;
- Endorse and support the environmental policy
- Liaise with INSW and other government authorities as required;
- Participate and provide guidance in the regular review of this SWMP and supporting documentation;
- Provide adequate resources (personnel, financial and technological) to ensure effective development, implementation and maintenance of this SWQMP;
- Ensure that all personnel receive appropriate induction training, including details of the environmental and community requirements.
- Ensure that complaints are investigated, and issues are resolved in accordance with the community and stakeholder engagement plan; and,
- Direct that works be stopped immediately where there is an actual or potential risk of harm to the environment, property and/or human health.

Senior Project Manager

FDC Senior Project Manager is responsible to the Project Director to ensure effective environmental controls are implemented for the duration of the project.

Specifically, the Senior Project Manager is responsible for the:

- Planning construction works so that it minimises impact to the environment;
- Implementing and maintaining the SWQMP;
- Implementing the CTMP and related approvals;
- Reviewing the environmental aspects at project start-up and ensuring the SWQMP addresses all requirements;
- Providing guidance, motivation and resources to achieve the provisions of the SWQMP;
- Ensuring that subcontractors and suppliers are aware of FDC environmental policy and objectives, through conditions of contract, tender interviews, scopes of work and site environmental inductions as applicable; and,
- Establishing monitoring records and ensuring the scope and frequency of monitoring activities satisfies the requirements of the SWQMP;

The Senior Project Manager shall have sufficient authority and independence to:

- Identify and record any environmental problems;
- Initiate solutions to the environmental problem;
- Stop the works, if such a decision becomes necessary, in order to prevent or mitigate adverse environmental conditions, or if corrective measures recommended are not being carried out; and,

Planning and Environment Project Manager

FDC Planning and Environment Project Manager is responsible for establishing and maintaining the Company's Environment Management System for the project and represents FDC on all environmental matters pertinent to the SWQMP

The Planning and Environment Manager is responsible for:

- Reports to the Project Director on performance and implementation of the CEMP and associated sub-Plans;
- Assisting the Site Managers with the implementation of the SWQMP;
- Providing support and technical assistance to the Project Site Coordinators;
- Monitoring the effectiveness of the Environmental Management System;
- Primary contact with INSW , EY and the Environmental Representative and other government authorities on environmental and approvals issues;
- Ensures SWMP reviews are carried out in accordance with the SWQMP;
- Monthly environmental reports;
- Compliance Tracking Reporting and collating of evidence;
- Register of Hold Points and Records of release
- Has authority to stop the works, if such a decision becomes necessary, in order to prevent or mitigate adverse environmental conditions, or if corrective measures recommended are not being carried out;
- Assists stakeholder and community manager on environmental issues;
- Attend environmental inspections, report on environmental incidents and non-compliances against the PPR and close out of related actions; and,
- Continually assess environmental risks.

The Planning and Environment Project Manager is authorised to require all employees, including Senior Project Manager to comply with the provisions of the SWQMP and EMS and may issue directions to that effect.

Site Manager

FDC Site Manager is responsible to the Senior Project Manager to ensure effective environmental controls are implemented for the duration of the project.

Specifically, the Site Manager is responsible for the:

- Planning construction works so that it minimises impact to the environment;
- Implementing and maintaining the SWQMP;
- Implementing the CTMP and related approvals;
- Providing guidance, motivation and resources to achieve the provisions of the SWMP;
- Ensuring that subcontractors and suppliers are aware of FDC environmental policy and objectives, through conditions toolbox talks, Daily prestarts, change management procedures, and site environmental inductions as applicable;
- Maintaining monitoring records and ensuring the Completion of task as required.
- Drive positive compliance to the SWMP to ensure the workforce is aware of their obligations under the SWMP
- The Site Manager shall have sufficient authority and independence to:
 - Identify and record any environmental problems;
 - Initiate solutions to the environmental problem;
 - Stop the works, if such a decision becomes necessary, in order to prevent or mitigate adverse environmental conditions, or if corrective measures recommended are not being carried out; and,

Document Controller

FDC Project Document Controller with respect to environmental issues reports to the Planning and Environment Project Manager. Responsibilities include:

- Uploading and maintaining controlled versions of the SWQMP, and other document submissions, for approval and evidence for compliance tracking on the Principal and Contractor's
- Notices to the Principal regarding audits, corrective actions, and environmental audit reports; and,
- Upload of monthly reports.

Independent Environmental Auditor

The Independent Environmental Auditor is a stakeholder that is responsible for carrying out environmental audits of the project on behalf of FDC to ensure compliance to FDC SSDA, PPR and contractual commitments. The Independent Environmental Auditor will undertake external audits on environmental management in accordance of the SSDA requirements AT 26 weeks or after a major Environmental incident.

Stakeholder and Community Relations Manager

With respect to environmental issues the Stakeholder and Community Relations Manager is responsible for:

- Ensuring communities are informed in accordance with the Project requirements;
- Report to the Planning and Environment Project Manager of any issues raised by the community;
- Reporting to the Senior Project Manager ;
- Maintaining a 24-hour complaints hotline;
- Maintaining the project website and reviews/endorses all content provided to that website;
- Drafting and issuing community notifications for works taking place out of hours; and,
- Representing FDC Constructions at meetings with local stakeholders and community groups.

Refer to the Community Communications Strategy Plan.

Contracts Manager

The Contracts Manager shall be responsible to the Senior Project Manager to ensure proper procedures are followed for the procurement of goods and services to ensure that FDC Constructions environmental policy and objectives and the requirements of the SWQMP are achieved.

Subcontractors, and Suppliers (service suppliers)

FDC Constructions will ensure all subcontractors and suppliers are responsible for conducting their activities in an environmentally sensitive manner and in compliance with the requirements of this SWQMP and sub- plans, Environmental Control Maps.

Site inductions will include detailed and site-specific environmental information. Any trade likely to have a high impact on the environment is required to submit an EMP, which is assessed to ensure it is comprehensive .

All personnel shall notify the FDC Site Manager of any activity or incident, or any deviations from workplace practices and procedures set out in this SWQMP.

Contractors shall ensure their personnel working at the site:

- Have the appropriate environmental awareness training and / or qualification for the task undertaken; and,
- Are aware of the potential environmental impacts of their activities on the Site and the procedures by which such impacts are to be minimised or prevented.

6.2 Training

- a) All employees, contractors and utility staff working on site will undergo site induction training relating to soil and water management issues, including:
 - i. Existence and requirements of this SWQMP.
 - ii. Relevant legislation.
 - iii. Roles and responsibilities for soil and water management.
 - iv. Water quality management and protection measures.
 - v. Groundwater issues.
 - vi. Procedure to be implemented in the event of an unexpected discovery of contaminated land.
- b) Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in soil and water management. Examples of training topics include:

- i. Working near or in drainage lines and creeks.
- ii. Emergency response measures in high rainfall events.
- iii. Preparedness for high rainfall events.
- iv. Lessons learnt from incidents and other events e.g. high rainfall or flooding.
- v. Spill response.
- vi. Stockpile location criteria.
- vii. Identification of potentially contaminated spoil and fill material.

6.3 Monitoring and Inspections

- a) Regular monitoring and inspections will be undertaken during construction in accordance with the CEMP.

6.4 Environmental Non-conformances and Contingency Planning

- a) Any environmental non-conformances will be dealt with and documented in accordance with the PMP.
- b) In the event that adverse impacts to ground or surface water quality are identified as a result of construction activities, the following contingency mitigation and remediation strategies will be implemented:
 - i. Implement stop works process.
 - ii. Ensure the area of impact is contained, pump out any contaminated water and dispose it off site to an appropriately licensed facility.
 - iii. Remediate disturbed / affected areas in consultation with ER and relevant agencies.
 - iv. Review and amend relevant construction method statements.
 - v. Use alternative plant and equipment.
 - vi. Identify any additional water quality monitoring requirements and increase the frequency of monitoring and site inspections if warranted.
- c) The works will recommence once the corrective actions have been implemented and preventative actions determined and agreed.

6.5 Complaints

- a) Complaints, as defined in the Australian and New Zealand Standard Guidelines for complaint management in organisations (AS/NZS 10002:2014), are "*expressions of dissatisfaction made to or about an organisation related to its products, services, staff or the handling of a complaint, where a response or resolution is explicitly or implicitly expected or legally required.*"
- b) Complaints are recorded in Consultation Manager (CM) and are filed as "avoidable" or "unavoidable".

a) Type	b) Definition	c) Examples
d) Avoidable	e) Could be prevented	<ul style="list-style-type: none"> Non-compliance with respite periods Worker parking across resident driveways
f) Unavoidable	g) Inevitable, not able to be prevented	<ul style="list-style-type: none"> High noise works Traffic changes in accordance with project requirements and permits

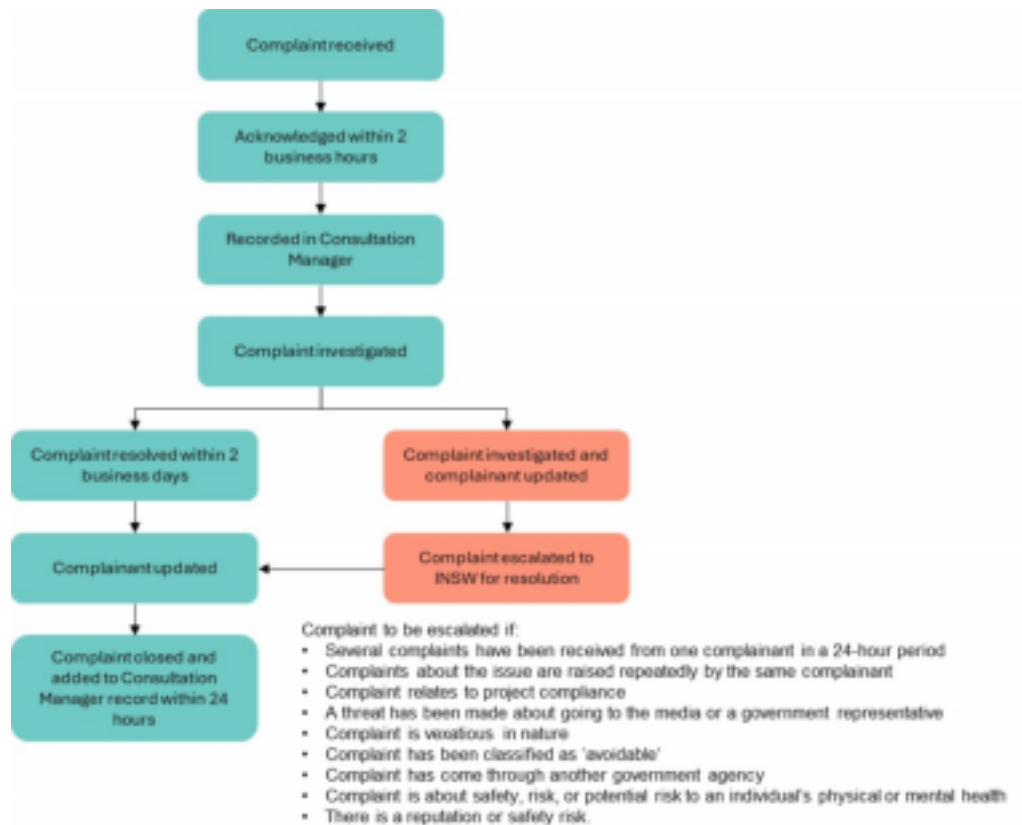
Reports on complaints can be generated from Consultation Manager at will. However, if a consolidated report format is required, Appendix B contains the proposed complaints reporting format.

- c) **Target timeframes** – FDC is committed to the prompt and reasonable resolution of complaints through fair processes regardless of how a complaint is received. FDC also understands that these timeframes are an INSW expectation for enquiry and complaint response and resolution, where a CCS or other project documentation isn't clear, to ensure complaints are managed promptly.

h) Type	i) Method	j) Acknowledgement	k) Resolution
l) Complaint	m) In-person n) Phone o) Email p) Letter q) SMS	r) Within 2 hours of receipt s) (Monday – Friday, Business hours)	t) Within 2 working days u) (Keep complainant updated if this can't be met)

- d) Managing Complaints including unresolved complaints escalation process

Standard complaints managing flow chart



- e) Managing Complaints for on-site personnel. On site personnel including Traffic Controllers sometime face hostile and unreasonable conduct from members of the public. The flow chart below details the complaint-handling procedure for on-site personnel. The hand off of the complaint to the FDC Community Manager will trigger the standard complaints procedure detailed above.

On-Site Enquiries and Complaints Management Flow Chart



- f) Where the complainant is unsatisfied by the resolution offered by FDC, the INSW Communications and Engagement Manager will manage the complaint escalation process. Generally, complaints requesting to change an approved project scope of works and/or works operating within project approvals would not be referred for mediation.

6.6 Audits

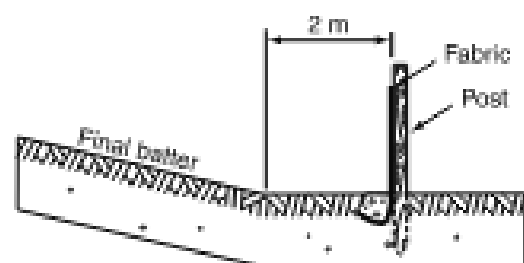
- a) Audits (both internal and external) will be undertaken to assess the effectiveness of environmental controls, compliance with this SWMP, CoA and other relevant approvals, licenses and guidelines.
- b) Audit requirements are detailed below;

Activity	Sub-category	Responsibility	Frequency
Review of soil and waste actions and controls	All site environmental controls	Site Manager and Environment Project Manager	Between weekly and an as needs basis dependent on level of onsite work activities and environmental risk profile
Severe Weather Event Review	All site environmental controls	Site Manager and Environment Project Manager	Immediately after severe weather events
Accidental Breach of Controls	All site environmental controls	Site Manager and Environment Project Manager	Immediately after breach of controls

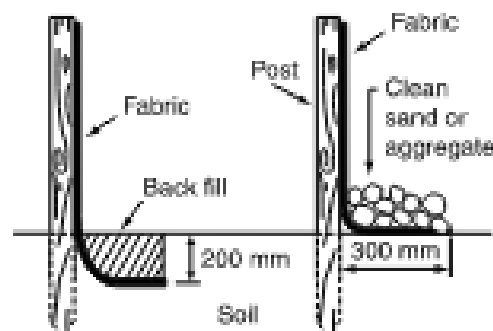
7 Review and Improvement

- a) The SWMP will be reviewed every 6 months to ensure compliance with legislative requirements and its suitability and effectiveness for the project.
- b) The review may be in the form of:
 - i. A formal management review
 - ii. A second party audit, and/or
 - iii. An inclusion as a separate item at a site meeting.
- c) The Project Manager can review and update the SWMP more regularly where:
 - i. Significant changes in construction activities occur.
 - ii. Where targets are not being achieved, or
 - iii. In response to audits and nonconformity reports.

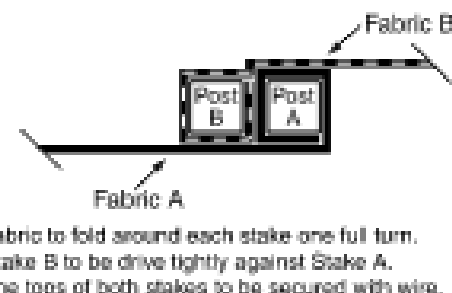
8 **Appendix A:** Erosion and Sediment Control Plan



(a) Location of fence relative to base of slope

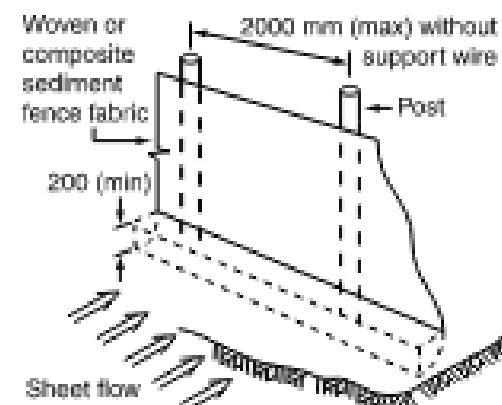


(b) Anchoring base of fabric

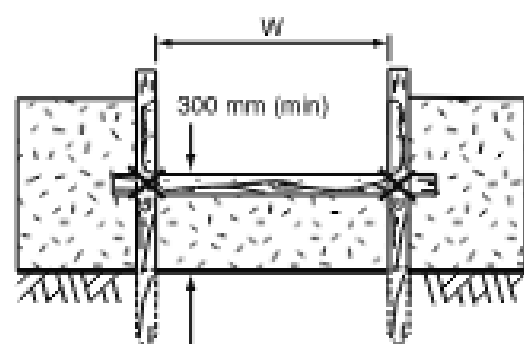


Fabric to fold around each stake one full turn.
Stake B to be drive tightly against Stake A.
The tops of both stakes to be secured with wire.

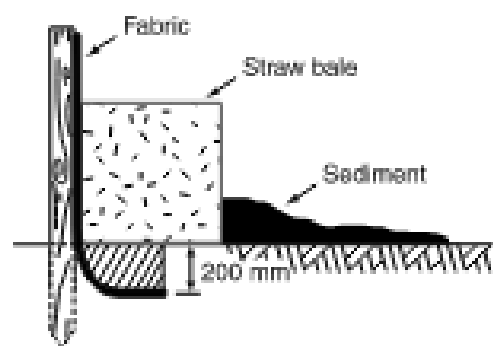
(c) Joining fabric - Method 1



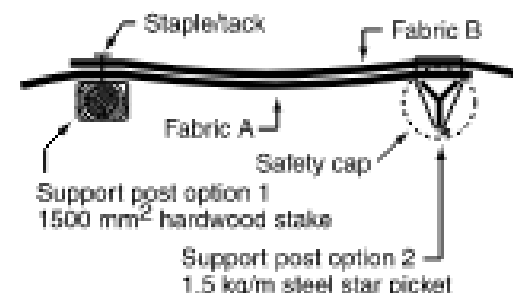
(d) Installation without backing support



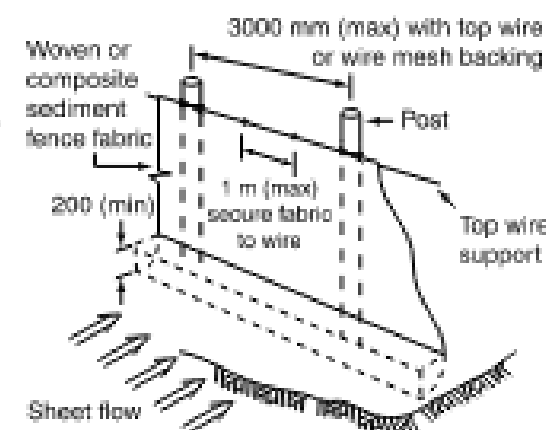
(e) Spill-through weir



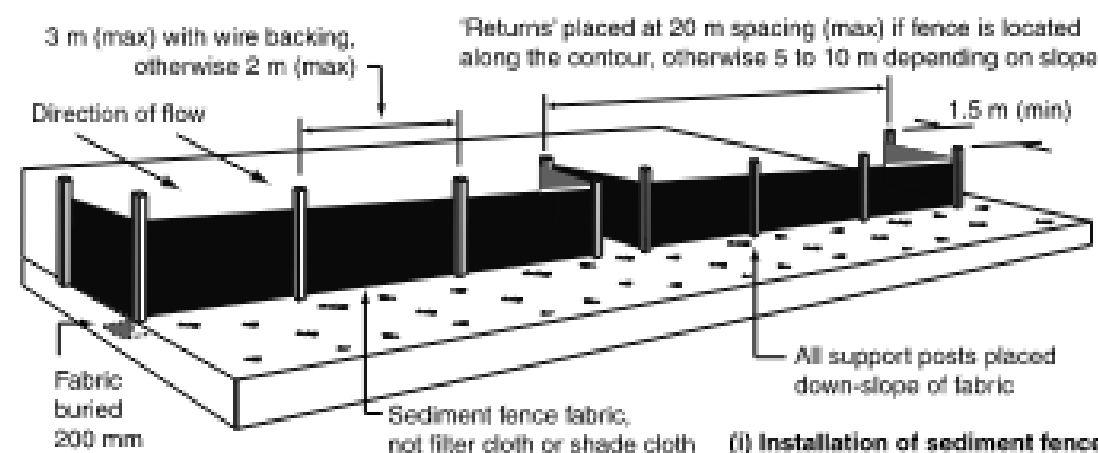
(f) Placement of up-slope straw bale



(g) Joining fabric - Method 2



(h) Installation with top wire support



(i) Installation of sediment fence

Notes:

1. Sediment fence to be installed along a line of constant ground elevation wherever practical.
2. Both end of the sediment fence to extend up the slope at least 1m.
3. Support post to be spaced a maximum 2m unless the fence is supported by a top wire or wire mesh backing, in which case 3m maximum spacing.
4. Fence 'returns' shall be installed at maximum 20m spacing if fence is installed along the contour, otherwise 5 to 10m maximum spacing.
5. Minimum 4 staples or tie wires per stake.

Drawn:	Date:		
GMW	Dec-09	Sediment Fence	SF-01

MATERIALS

FABRIC (LIGHT TRAFFIC AREAS):
HEAVY-DUTY, NEEDLE-PUNCHED,
NON-WOVEN FILTER CLOTH ('BIDIM'
A34 OR EQUIVALENT).

FABRIC (HEAVY TRAFFIC AREAS):
POLY-PROPYLENE, POLYAMIDE,
NYLON, POLYESTER, OR
POLYETHYLENE WOVEN OR
NON-WOVEN REINFORCED FABRIC.
THE FABRIC WIDTH SHOULD BE AT
LEAST 700mm, WITH A MINIMUM UNIT
WEIGHT OF 140g/m². FABRICS
SHOULD CONTAIN ULTRAVIOLET
INHIBITORS AND STABILISERS TO
PROVIDE A MINIMUM OF 6 MONTHS
OF USEABLE CONSTRUCTION LIFE
(ULTRAVIOLET STABILITY EXCEEDING
70%).

INSTALLATION

1. REFER TO APPROVED PLANS FOR
LOCATION AND DIMENSIONAL
DETAILS. IF THERE ARE QUESTIONS
OR PROBLEMS WITH THE LOCATION,
DIMENSIONS OR METHOD OF
INSTALLATION CONTACT THE
ENGINEER OR RESPONSIBLE
ON-SITE OFFICER FOR ASSISTANCE.
2. ENSURE THAT THE INSTALLATION
OF THE SEDIMENT TRAP WILL NOT
CAUSE UNDESIRABLE SAFETY OR
FLOODING ISSUES.
3. SELECT THE APPROPRIATE FABRIC
FOR THE SITE CONDITIONS.

4. WRAP THE FABRIC AROUND OR
OVER THE STORMWATER INLET
GRATE IN SUCH A MANNER THAT
PREVENTS ANY WATER ENTERING
THE STORMWATER INLET WITHOUT
PASSING THROUGH THE FABRIC.

5. ENSURE ALL OTHER FLOW ENTRY
POINTS ARE COVERED WITH FABRIC
SUCH THAT WATER CANNOT ENTER
THE STORMWATER INLET WITHOUT
PASSING THROUGH A SUITABLE
FILTER.

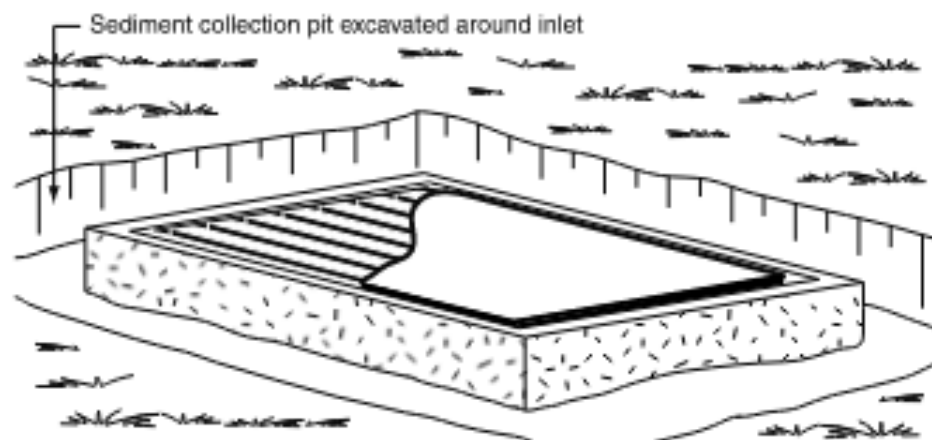
6. TAKE ALL NECESSARY MEASURE
TO MINIMISE SAFETY OR FLOODING
RISK CAUSED BY OPERATION OF THE
SEDIMENT TRAP.

MAINTENANCE

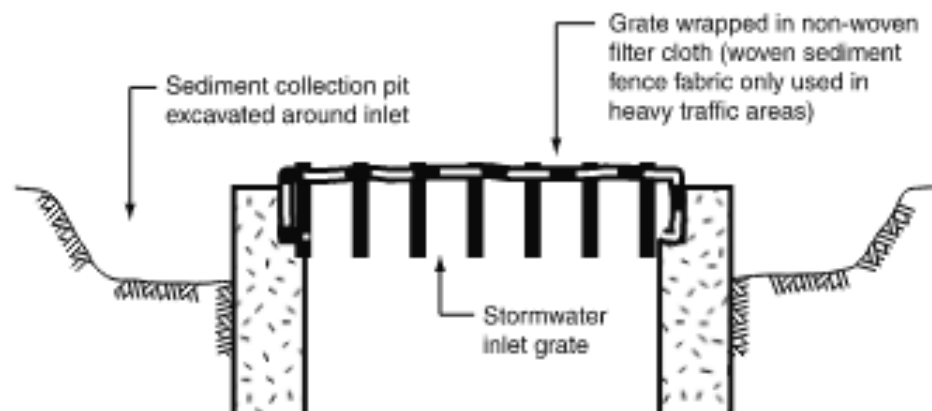
1. INSPECT THE BARRIER AFTER
EACH RUNOFF-PRODUCING
RAINFALL EVENT AND MAKE REPAIRS
AS NEEDED TO THE SEDIMENT TRAP.
2. REMOVE COLLECTED SEDIMENT
AND DISPOSE OF IN A SUITABLE
MANNER THAT WILL NOT CAUSE AN
EROSION OR POLLUTION HAZARD.
3. REPLACE THE FABRIC IF IT IS TORN
OR DAMAGED.
4. SEDIMENT DEPOSITS SHOULD BE
REMOVED IMMEDIATELY IF THEY
REPRESENT A SAFETY RISK.

REMOVAL

1. WHEN THE UP-SLOPE DRAINAGE
AREA HAS BEEN STABILISED,
REMOVE ALL MATERIALS INCLUDED
DEPOSITED SEDIMENT AND DISPOSE
OF IN A SUITABLE MANNER THAT WILL
NOT CAUSE AN EROSION OR
POLLUTION HAZARD.



(a) Fabric wrap drop inlet protection with trench



(b) Typical details of excavated sediment collection trench

Drawn:	Date:	Grated Stormwater (Field) Inlet Sediment Trap	ESC-02
GMW	May-10		

MATERIALS

FABRIC: POLYPROPYLENE, POLYAMIDE, NYLON, POLYESTER, OR POLYETHYLENE WOVEN OR NON-WOVEN FABRIC, AT LEAST 700mm IN WIDTH AND A MINIMUM UNIT WEIGHT OF 140GSM. ALL FABRICS TO CONTAIN ULTRAVIOLET INHIBITORS AND STABILISERS TO PROVIDE A MINIMUM OF 6 MONTHS OF USEABLE CONSTRUCTION LIFE (ULTRAVIOLET STABILITY EXCEEDING 70%).

FABRIC REINFORCEMENT: WIRE OR STEEL MESH MINIMUM 14-GAUGE WITH A MAXIMUM MESH SPACING OF 200mm.

SUPPORT POSTS/STAKES: 1500mm² (MIN) HARDWOOD, 2500mm² (MIN) SOFTWOOD, OR 1.5kg/m (MIN) STEEL STAR PICKETS SUITABLE FOR ATTACHING FABRIC.

INSTALLATION

1. REFER TO APPROVED PLANS FOR LOCATION, EXTENT, AND REQUIRED TYPE OF FABRIC (IF SPECIFIED). IF THERE ARE QUESTIONS OR PROBLEMS WITH THE LOCATION, EXTENT, FABRIC TYPE, OR METHOD OF INSTALLATION CONTACT THE ENGINEER OR RESPONSIBLE ON-SITE OFFICER FOR ASSISTANCE.

2. TO THE MAXIMUM DEGREE PRACTICAL, AND WHERE THE PLANS ALLOW, ENSURE THE FENCE IS LOCATED:

- (i) TOTALLY WITHIN THE PROPERTY BOUNDARIES;
- (ii) ALONG A LINE OF CONSTANT ELEVATION WHEREVER PRACTICAL;
- (iii) AT LEAST 2m FROM THE TOE OF ANY FILLING OPERATIONS THAT MAY RESULT IN SHIFTING SOIL/FILL DAMAGING THE FENCE.

3. INSTALL RETURNS WITHIN THE FENCE AT MAXIMUM 20m INTERVALS IF THE FENCE IS INSTALLED ALONG THE CONTOUR, OR 5 TO 10m MAXIMUM SPACING (DEPENDENT ON SLOPE) IF THE FENCE IS INSTALLED AT AN ANGLE TO THE CONTOUR. THE 'RETURNS' SHALL CONSIST OF EITHER:

- (i) V-SHAPED SECTION EXTENDING AT LEAST 1.5m UP THE SLOPE; OR
- (ii) SANDBAG OR ROCK/AGGREGATE CHECK

DAM A MINIMUM 1/3 AND MAXIMUM 1/2 FENCE HEIGHT, AND EXTENDING AT LEAST 1.5m UP THE SLOPE.

4. ENSURE THE EXTREME ENDS OF THE FENCE ARE TURNED UP THE SLOPE AT LEAST 1.5m, OR AS NECESSARY, TO MINIMISE WATER BYPASSING AROUND THE FENCE.

5. ENSURE THE SEDIMENT FENCE IS INSTALLED IN A MANNER THAT AVOIDS THE CONCENTRATION OF FLOW ALONG THE FENCE, AND THE UNDESIRABLE DISCHARGE OF WATER AROUND THE ENDS OF THE FENCE.

6. IF THE SEDIMENT FENCE IS TO BE INSTALLED ALONG THE EDGE OF EXISTING TREES, ENSURE CARE IS TAKEN TO PROTECT THE TREES AND THEIR ROOT SYSTEMS DURING INSTALLATION OF THE FENCE. DO NOT ATTACH THE FABRIC TO THE TREES.

7. UNLESS DIRECTED BY THE SITE SUPERVISOR OR THE APPROVED PLANS, EXCAVATE A 200mm WIDE BY 200mm DEEP TRENCH ALONG THE PROPOSED FENCE LINE, PLACING THE EXCAVATED MATERIAL ON THE UP-SLOPE SIDE OF THE TRENCH.

8. ALONG THE LOWER SIDE OF THE TRENCH, APPROPRIATELY SECURE THE STAKES INTO THE GROUND SPACED NO GREATER THAN 3m IF SUPPORTED BY A TOP SUPPORT WIRE OR WEIR MESH BACKING, OTHERWISE NO GREATER THAN 2m.

9. IF SPECIFIED, SECURELY ATTACH THE SUPPORT WIRE OR MESH TO THE UP-SLOPE SIDE OF THE STAKES WITH THE MESH EXTENDING AT LEAST 200mm INTO THE EXCAVATED TRENCH. ENSURE THE MESH AND FABRIC IS ATTACHED TO THE UP-SLOPE SIDE OF THE STAKES EVEN WHEN DIRECTING A FENCE AROUND A CORNER OR SHARP CHANGE OF DIRECTION.

10. WHEREVER POSSIBLE, CONSTRUCT THE SEDIMENT FENCE FROM A CONTINUOUS ROLL OF FABRIC. TO JOIN FABRIC EITHER:

- (i) ATTACH EACH END TO TWO OVERLAPPING STAKES WITH THE FABRIC FOLDING AROUND THE ASSOCIATED STAKE ONE TURN, AND WITH

THE TWO STAKES TIED TOGETHER WITH WIRE; OR

- (ii) OVERLAP THE FABRIC TO THE NEXT ADJACENT SUPPORT POST.

11. SECURELY ATTACH THE FABRIC TO THE SUPPORT POSTS USING 25 X 12.5mm STAPLES, OR TIE WIRE AT MAXIMUM 150mm SPACING.

12. SECURELY ATTACH THE FABRIC TO THE SUPPORT WIRE/MESH (IF ANY) AT A MAXIMUM SPACING OF 1m.

13. ENSURE THE COMPLETED SEDIMENT FENCE IS AT LEAST 450mm, BUT NOT MORE THAN 700mm HIGH. IF A SPILL-THROUGH WEIR IS INSTALLED, ENSURE THE CREST OF THE WEIR IS AT LEAST 300mm ABOVE GROUND LEVEL.

14. BACKFILL THE TRENCH AND TAMP THE FILL TO FIRMLY ANCHOR THE BOTTOM OF THE FABRIC AND MESH TO PREVENT WATER FROM FLOWING UNDER THE FENCE.

ADDITIONAL REQUIREMENTS FOR THE INSTALLATION OF A SPILL-THROUGH WEIR

1. LOCATE THE SPILL-THROUGH WEIR SUCH THAT THE WEIR CREST WILL BE LOWER THAN THE GROUND LEVEL AT EACH END OF THE FENCE.

2. ENSURE THE CREST OF THE SPILL-THROUGH WEIR IS AT LEAST 300mm THE GROUND ELEVATION.

3. SECURELY TIE A HORIZONTAL CROSS MEMBER (WEIR) TO THE SUPPORT POSTS/STAKES EACH SIDE OF THE WEIR. CUT THE FABRIC DOWN THE SIDE OF EACH POST AND FOLD THE FABRIC OVER THE CROSS MEMBER AND APPROPRIATELY SECURE THE FABRIC.

4. INSTALL A SUITABLE SPLASH PAD AND/OR CHUTE IMMEDIATELY DOWN-SLOPE OF THE SPILL-THROUGH WEIR TO CONTROL SOIL EROSION AND APPROPRIATELY DISCHARGE THE CONCENTRATED FLOW PASSING OVER THE WEIR.

MAINTENANCE

1. INSPECT THE SEDIMENT FENCE AT LEAST WEEKLY AND AFTER ANY SIGNIFICANT RAIN. MAKE NECESSARY REPAIRS IMMEDIATELY.

2. REPAIR ANY TORN SECTIONS WITH A CONTINUOUS PIECE OF FABRIC FROM POST TO POST.

3. WHEN MAKING REPAIRS, ALWAYS RESTORE THE SYSTEM TO ITS ORIGINAL CONFIGURATION UNLESS AN AMENDED LAYOUT IS REQUIRED OR SPECIFIED.

4. IF THE FENCE IS SAGGING BETWEEN STAKES, INSTALL ADDITIONAL SUPPORT POSTS.

5. REMOVE ACCUMULATED SEDIMENT IF THE SEDIMENT DEPOSIT EXCEEDS A DEPTH OF 1/3 THE HEIGHT OF THE FENCE.

6. DISPOSE OF SEDIMENT IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

7. REPLACE THE FABRIC IF THE SERVICE LIFE OF THE EXISTING FABRIC EXCEEDS 6-MONTHS.

REMOVAL

1. WHEN DISTURBED AREAS UP-SLOPE OF THE SEDIMENT FENCE ARE SUFFICIENTLY STABILISED TO RESTRAIN EROSION, THE FENCE MUST BE REMOVED.

2. REMOVE MATERIALS AND COLLECTED SEDIMENT AND DISPOSE OF IN A SUITABLE MANNER THAT WILL NOT CAUSE AN EROSION OR POLLUTION HAZARD.

3. REHABILITATE/REVEGETATE THE DISTURBED GROUND AS NECESSARY TO MINIMISE THE EROSION HAZARD.

Drawn:

GMW

Date:

Apr-10

Sediment Fence

SF-02

9 Appendix B: Unexpected Finds Protocol

Unexpected Finds Procedure

Project Details

Project Name: Barangaroo Cutaway Cultural Facility

Project Number: 200290

Project Location: 1 Merriman St, Barangaroo NSW 2000

Client: Infrastructure NSW

Name of principal contractor: FDC Construction (NSW) Pty Limited

Company address: 22-24 Junction Street, Forest Lodge NSW 2037

ABN: 72 608 609 427

Prepared
Signature

Peter Colak

Digitally signed by Peter
Colak
Date: 2025.02.10 12:23:23
+11'00'

Approved
Signature

Emma Thomy

Digitally signed by Emma
Thomy
Date: 2025.02.10 13:22:59
+11'00'

Peter Colak

Senior Project Manager

Emma Thomy

Project Director

Revision Date	REVISION DESCRIPTION	PM's INITIALS (revision approval)
5 / 2 / 2025	Unexpected Finds Update	HP

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1 FDC PROJECT PERSONNEL CONSULTATION AND SIGN OFF

We, the undersigned, confirm that we have been consulted on the contents of this document, read and understood the contents of this document, and agree to implement the requirements of this Plan on this project site

1.1 Personal sign off

Name	Position	Signature	Date
Peter Colak	Senior Project Manager		5 / 02 / 2025
Charlie Akle	Senior Site Manager		5 / 02 / 2025
Colin Darmody	Senior HSE Advisor (HSE)		5 / 02 / 2025

2 Introduction

2.1 Management System and Documentation

System documents which are referenced in this Plan or any associated Plan is only accessible to FDC personnel. Additional information can be obtained from the Senior Project Manager.

2.2 FDC Site Management

FDC project personnel will be inducted into the requirements of this Plan and any associated Plan or Risk Register by the relevant Project Manager. Evidence of induction and discussion will be recorded within section FDC Project Personnel Consultation and Sign off.

2.3 Information supplied to Subcontractors

This Plan and any associated Plan or Risk Register (including any future revisions) will be supplied to subcontractors for review through the Aconex portal or another approved format.

2.4 Site filing

A hard copy of this Plan and any associated Plan or Risk Register including any future revisions will be held on site. On completion of the project, all relevant plans and documents will be archived.

3 Project information

3.1 Project description

The Cutaway project is located under the Barangaroo parkland built by Balderstone (Lendlease) and completed in 2015, the Harbour control tower which was located on ground floor and extended through open void in the roof was demolished by Liberty international demolition.

4 Plan overview

4.1 General Principles for asbestos containing material (ACM)

FDC Construction asbestos management have been set in accordance with current and relevant Codes of Practice and statutory obligations

- Assuming Asbestos or ACM is present – What next!
- Arrange for sampling and testing
- Indicating the presence of Asbestos or ACM
- Assessing the risk of exposure
- Populating an Asbestos Register
- Reviewing and revising the Asbestos Register
- Accessing the Asbestos Register
- Transferring the Asbestos Register
- Populating an Asbestos Management Plan / Removal Plan
- Reviewing and revising the Asbestos Management Plan / Removal Plan
- Accessing the Asbestos Management Plan / Removal Plan
- Managing other Asbestos related risks
- Contaminated sites – Clearance Certificates
- Demolition works
- Asbestos related work
- Disposing of Asbestos or ACM
- Managing exposure to Asbestos or ACM
- Health monitoring
- Training workers about Asbestos and ACM
- Equipment uses
- Controlling risk – Hierarchy of control
- Safe Work Practices
- Personal Protective Equipment

4.2 Unexpected Heritage Finds (UHF)

An Unexpected Heritage Find can be defined as any unanticipated discovery that has not been identified during a previous assessment or is not covered by an existing permit under relevant legislation. The find may have potential cultural heritage value which may require some type of statutory cultural heritage permit or notification if any interference of the heritage item is proposed or anticipated.

The range of potential archaeological discoveries can include but are not limited to:

- Aboriginal or European stone artefacts, shell middens, burial sites, engraved rock art, scarred trees.
- Remains of rail infrastructure including buildings, footings, stations, signal boxes, rail lines, bridges and culverts.
- Remains of other infrastructure including sandstone or brick buildings, wells, cisterns, drainage services, conduits, old kerbing and pavement, former road surfaces, timber and stone culverts, bridge footings and retaining walls;
- Artefact scatters including clustering of broken and complete bottles, glass, ceramics, animal bones and clay pipes; Archaeological human skeletal remains.
- Animal skeletal remains

5 Training

5.1 Asbestos and Heritage Awareness Training

Asbestos awareness training provides participants with a general overview of asbestos including history and background; asbestos types and properties; common asbestos situations; health effects; risk in perspective and management of asbestos. Training is provided both internally and by external providers.

5.2 Asbestos and Heritage Removal Training

This course is typically provided by an external registered training organisation (RTO) to personnel who intend to remove bonded ACM, pre-requisite for obtaining a SafeWork recognised license.

6 Procedure in the event of Unexpected Find

Should an unexpected find of potential contamination be encountered during the works, the following procedure (Steps 1 to 13) should be followed with reference to the *Incident Response Flow Chart*.

It must additionally be ensured that implemented procedures are in accordance with other adopted site documentation, such as the Environmental Management Plan, Health and Safety Management Plan

Identified finding by worker

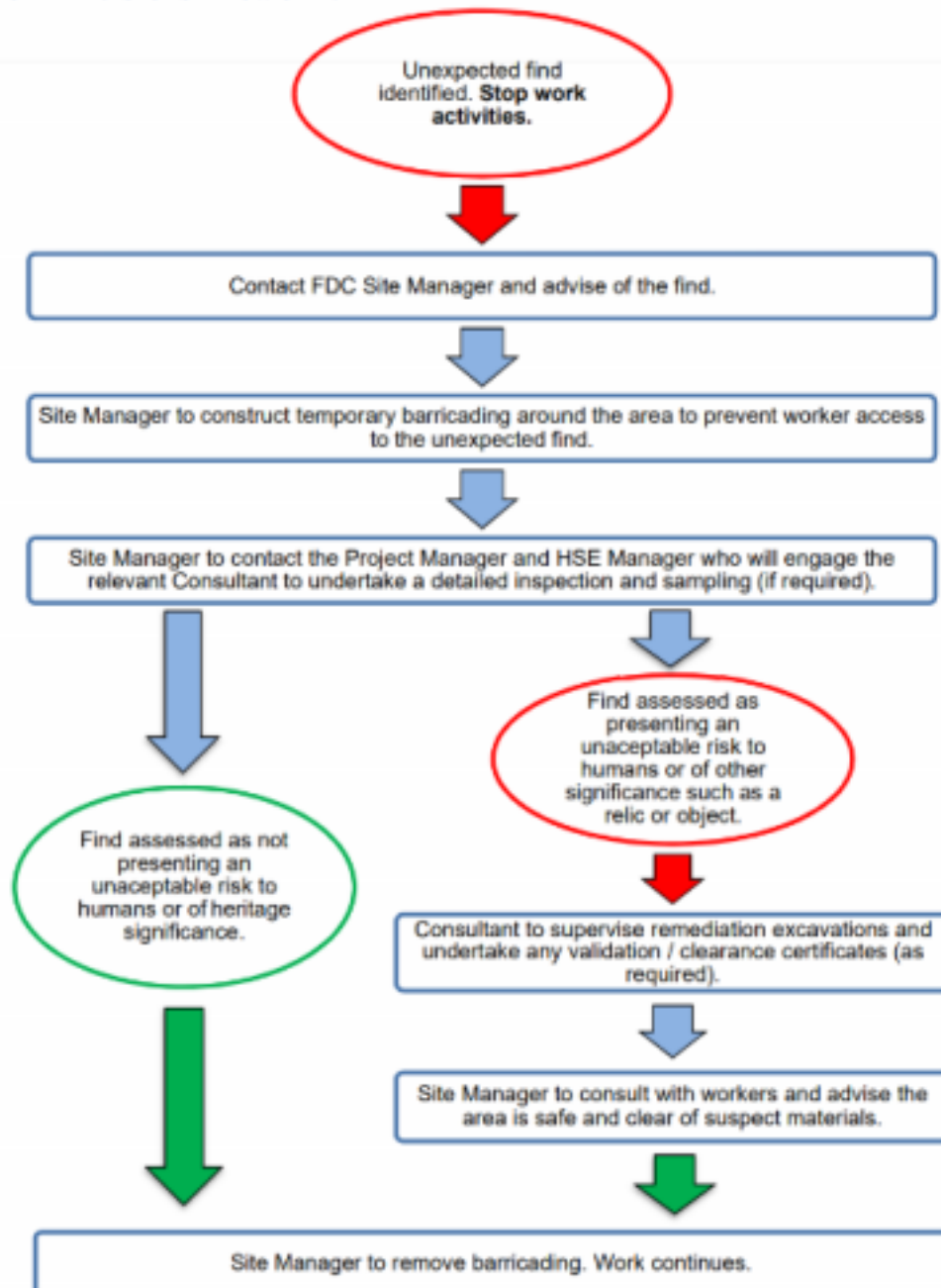
1. Cease work as soon as safe to do so and move clear of the finding.
2. Do not tamper or attempt to remove the finding.
3. Contact FDC Management immediately.
4. Site Management to delineate an exclusion or quarantine zone around the area using fencing and or appropriate barriers and signage.
5. If not already done, Site Manager is to notify the Project Manager and or Project Director.
6. Cover area with tarps if practicable to preserve finding.
7. The site manager or Senior project manager will initially assess the potential risk to health or the environment by the finding and assess if evacuation or emergency services need to be contacted.
8. Project Manager will arrange inspection by an external Environmental / Heritage Consultant to assess the finding and provide advice as follows:
 - Preliminary assessment of the find and need for immediate management controls.
 - What further assessment and/or remediation works are required and how such works are to be undertaken in accordance with contaminated site regulations and guidelines.
 - Preparation of a remedial action plan for large scale contamination or specification for smaller or minor volumes of material
 - Remediation works required
 - Validation works required following remediation works
9. Works will not recommence in the affected area until appropriate advice has been obtained from the consultant or suitably qualified person with approval to recommence.
10. Any excavation works will not recommence until the extent of any contamination has been assessed and, if necessary, a remedial action plan (RAP) has been prepared.
11. Air monitoring requirements are to be advised by the consultant and implemented as required.
12. If safe to do so, the consultant will provide clearances for works to proceed in

the affected area (subject to conditions). If it is not considered to be safe, works will remain on hold until appropriate approval is provided.

13. Excavated material from remedial activities will be separated from other materials and stockpiled for assessment. Sampling of the materials will be undertaken in accordance with the relevant guidelines or professional judgement where justification is applied. Samples will be analysed for a range of analytes as required for beneficial reuse or offsite disposal.
14. For materials requiring offsite disposal, laboratory results will be assessed to determine the appropriate waste classification of the material in accordance with the NSW EPA Waste Classification Guidelines. Depending on the classification, materials will be transported to an appropriate waste facility that is licensed to accept waste of the relevant classification or beneficially reused if appropriate.
15. A waste tracking system recording the volume of material, waste classification / beneficial reuse status, removal documentation and truck and receiving landfill facility details will be recorded to ensure all waste is accounted for and disposed or appropriately in accordance with NSW EPA requirements.
16. Any unexpected finds must be documented, and records of volumes and types of materials identified removed from the site must be kept on file.
17. Keep a record of the unexpected find. The record must include exact location of the find. Documentation on the removal of any contaminated materials from the site must be kept on file
 - Volume of material removed,
 - The type (classification) of material,
 - Licensed facility that the material was disposed to,
 - Receipt documentation from the licensed facility confirming volume received.

UNEXPECTED FINDS PROTOCOL

INCIDENT RESPONSE FLOW CHART



8.2

9 Roles and Responsibilities

Person / Party	Responsibility
Project Director (PD), Senior Project Manager (PM)	<ul style="list-style-type: none"> • Ensure all staff and contractors are aware of and comply with the plan. • Project management • Identification and bringing to the attention of appropriate staff, any suspect material • Ensure all contractors working on asbestos are aware of and meet the requirement of the plan. • Monitor and review compliance
Site Manager (SM), Senior HSE Advisor (HSE)	<ul style="list-style-type: none"> • Obtain from Subcontractor, copy of SafeWork Notification (Requirement of FDC Asbestos removal permit) • Ensure project personnel (including contractors) are inducted • Surveying, identification and arranging for sampling of suspected asbestos containing materials by competent persons. • Training and awareness • Manage the asbestos works program and removal program • Respond to incidents • Document preparation, recording and filing • Manage asbestos inspection contractor • Monitor and review compliance
Contractors (C) and Trades Staff (TS)	<ul style="list-style-type: none"> • Not to impact on an ACM without complying with the plan • To bring to the attention of the SM/HSE any suspect material • Refer to the plan for guidance to identify, manage, and remove asbestos • Apply for Asbestos Permit to Work when performing asbestos removal work that requires notification. • Undergo FDC Contractor Induction • Develop a site-specific asbestos removal control plan, SWMS AND Risk Assessment prior to performing the asbestos removal work

10 Environmental Risk Register

Refer to Workplace Safety Australia to assist in the identification of Legislation and Codes of Practice that apply to FDC operations and project / site activities undertaken. Applicable Legislation and Codes of Practice are to be identified in the reference section below.

Refer to Workplace Safety Australia for a detailed register of applicable Australian Standards. Access to Australian Standards is available through SAI Global

11 Reference Legislation

11.1 Acts and Regulations

- Environment Protection and Biodiversity Conservation Act 1999
- Environmental Protection and Biodiversity Conservation Regulations 2000
- Environmental Protection Act 1994
- Environmental Protection Regulation 2008
- Contaminated Land Act 1991
- Protection of the Environmental Operations (POEO) Act 1997
- Protection of the Environmental Operations (Clean Air) Regulation 2002
- Protection of the Environmental Operations (Waste) Regulation 2005
- Protection of the Environmental Operations (General) Regulation 2009
- Contaminated Land Management Act 1997
- Waste Avoidance and Resource Recovery Act 2001
- Contaminated Land Management Regulation 2008
- Environmental Protection Act 1997
- Environmental Protection Regulation 2005
- Environmental Protection Act 1970
- Environmental Protection Act 1993
- Environmental Protection Regulation 2009
- Environmental Protection Act 1986
- Environmental Protection Regulation 1987
- Environmental Protection (Noise) Regulations 1997
- Contaminated Sites Act 2003
- Contaminated Sites Regulations 2006

11.2 Policy

- Environmental Protection (Waste Management) Regulation 2000
- Environmental Protection (Air) Policy 2008
- Environmental Protection (Waste Management) Policy 2000
- Plant Protection Regulation 2002
- Environmental Protection (Noise) Policy 2008
- Nature Conservation Act 1992
- Environmental Protection (Water) Policy 2009
- General Environmental Protection Policy 2007
- Contaminated Sites 2009
- Noise 2010
- Hazardous Material 2010
- Air 1999
- Water Quality 2008
- State Environment Protection Policy (Ambient Air Quality) 1999

- State Environment Protection Policy (Groundwater's of Victoria) 1997
- Industrial Waste Management Policy (Waste Acid Sulphate Soils) 1999
- State Environment Protection Policy (Air Quality Management) 2001.
- State Environment Protection Policy (Control of Noise from Commerce, Industry and Trade) 1989
- State Environment Protection Policy (Prevention and Management of Contamination of Land) 2002
- State Environment Protection Policy (Waters of Victoria) 1988
- Code of Practice for the Building and Construction Industry – Stormwater Pollution Prevention 1999

11.3 Cultural Heritage

- The Native Title Act 1993 (Cth)
- Aboriginal and Torres Strait Islander Heritage Protection Act 1984 (Cth)
- Aboriginal Cultural Heritage Act 2003
- Torres Strait Islander Cultural Heritage Act 2003
- Queensland Heritage Act 1992
- National Parks and Wildlife Amendment (Aboriginal Ownership) Act 1996
- Heritage Act 1977
- Aboriginal Land Rights Act 1983
- Heritage Objects Act 1991
- Heritage Act 2004
- Aboriginal Heritage Act 2006
- Aboriginal Heritage Regulations 2007
- Aboriginal Heritage Act 1988
- Heritage Act 1994
- Heritage Places Act 1993
- Aboriginal Heritage Act 1972

11.4 HSE System References

General Requirements

- Erosion and Sediment Management
- Air Quality Management
- Water Quality Management
- Noise and Vibration Management
- Contaminants
- Heritage Management
- Waste Management
- Spills Management
- Fauna and Flora Protection
- Potable Water Management
- Non-potable Water Management

10 Appendix C: Stockpile Management Protocol

PURPOSE

This protocol describes the requirements for the monitoring and managing of spoil and fill including details of how excavated materials would be handled, stockpiled, reused and disposed. This protocol outlines the locational criteria used to guide the placement of stockpiles and provides both standard and site-specific mitigation measures to be implemented in order to minimise impacts on the environment.

Stockpile sites may typically be required to store material including, but not limited to:

- a) Excavated materials to be used in fill embankments and other design features.
- b) ASS subject to treatment prior to reuse.
- c) Excavated material unsuitable for reuse in the formation.
- d) Excess concrete, pavement, rock, steel and other material stored for either future use in the Project, or prior to removal from site.
- e) Topsoil, mulch, excess timber for landscaping and revegetation works.

SCOPE

This protocol applies to the siting and placement of all stockpiles within the Project footprint.

PROTOCOL

Prior to the establishment of any stockpile on site as part of the Project, ensure that:

- a) Materials will be stockpiled outside the drip line of trees or native vegetation, and never pushed up around the base of trees.
- b) Installation of erosion and sedimentation controls in accordance with the approved progressive erosion and sediment control plan.
- c) Short-term stockpiles are covered with plastic or kept damp to control dust where required. Long-term stockpiles (i.e. unused for longer than 1 month) will be revegetated with cover-crop or similar.
- d) Potentially affected residents within 200m of stockpiles will be notified regarding the location of the stockpile areas, the potential impact from constructing the stockpile (including visual and odour impacts) and proposed mitigation measures. Should a resident be dissatisfied with the proposed mitigation measures, the stockpile location or associated mitigation measures would be reviewed accordingly.

11 Appendix D: Heavy Rainfall Event Procedure

PURPOSE

To detail the actions to be taken in the event of a 'heavy' or 'violent' rainfall forecast as defined by the Australian Government Bureau of Meteorology. The procedure outlines how to monitor rainfall forecast and prepare site to minimise impacts as much as practicable.

DEFINITIONS OF RAIN OR SHOWER INTENSITY

This protocol applies to the sitting and placement of all stockpiles within the Project footprint.

Category	Description
Light	Up to 2mm per hour. Individual drops easily identified, puddles form slowly, small streams may flow in gutters.
Moderate	2.2mm to 6mm per hour. Rapidly forming puddles, down pipes flowing freely, some spray visible over hard surfaces.
Heavy	6.2mm to 50mm per hour. Falls in sheets, misty spray over hard surfaces. May cause roaring noise on roof.
Violent	Over 50mm per hour. Gutters and downpipes overflowing, spray to height of several centimetres over hard surfaces. May cause roaring noise on roof.

TRAINING

All FDC Foremen and Engineers will be trained in this Procedure.

PROCEDURE

1. Monitoring of 'heavy' or 'violent' rain or shower events (through the Australian Government Bureau of Meteorology):
 - a) On each working day, the Site Manager or Project Engineer or delegate will log on to the Australian Government Bureau of Meteorology website: <http://www.bom.gov.au/nsw/index.shtml>, review the weather forecast for the next three days and notify the project team of the results by email.
 - b) When rain or showers are described as 'heavy' or 'violent', the Site Manager or Project Engineer or delegate will highlight that:
 - i. Rain or showers are described as 'heavy' or 'violent', as applicable.
 - ii. The Heavy Rainfall Event Procedure must be followed.
 - c) The Site Manager or Project Engineer or delegate will keep a record of all weather forecast emails.
 - d) The daily weather forecast may be discussed at Prestart Meetings as deemed required by FDC's Foreman / Manager.
2. When rain or showers are described as 'heavy' or 'violent' the FDC Site Manager will notify the site team of personnel who will monitor and maintain erosion and sediment controls if required.
3. The Foreman will ensure that there is an adequate supply of erosion and sediment control measures on site.

4. Prior to the 'heavy' or 'violent' rainfall or shower event, the Foreman or Site Manager or delegate will inspect erosion and sediment measures, focusing on the critical areas first. These may include stockpile areas, chemical storage areas and sediment basins.
5. The Site Manager and Foreman will ensure maintenance is performed, focusing on the critical areas first, as described above.
 - a. Site Manager or Project Engineer or delegate to enter items (that cannot be immediately actioned) into the Environmental Risk Assessment (F010).
 - b. Site Manager or Project Engineer or delegate to issue relevant part of the Environmental Risk Assessment (F010) to the responsible Engineers and Foremen.
 - c. Responsible Engineers and Foremen to notify Site Manager or Project Engineer or delegate upon completion of actions.
 - d. Completed actions to be verified by the Site Manager or Project Engineer or delegate and actions closed out in the Environmental Risk Assessment (F010).