These tables set out the operational controls required to achieve the objectives and targets set out in Environmental Program 02 Soil and Water Management. BBA will, as a minimum, implement the control activities and performance measures set out below.

Table OCO 2.1 Soil and Water Management

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Ref.	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
INDUCTION AND TRAINING							
1.	Design Consultant briefing	CEMP 10	The Design Consultants will be briefed on the design aspects of this Control Document	Design Director	Prior to start of design.	Briefing record	
2.	Project and site induction	CEMP 10 CEMP 13	All employees, consultants and subcontractors involved will be inducted into the environmental aspects and controls related to this Control Document.	Construction Director or Project Manager, as applicable Start up Manager for Early Works	Prior to personnel commencing work on site	Induction records	
3.	Staff Construction Environmental Management Plan induction	CEMP 13	All relevant staff will be inducted into the requirements of the Construction Environmental Management Plan and all associated documents.	Construction Director or Project Manager, as applicable	Prior to staff commencing work on site	Induction records	

Ref.	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
4.	Awareness training	CEMP 13 CEMP 14	Conduct awareness instruction of relevant BBA staff, contractors and field personnel. Objectives of Soil and Water Management awareness training include: • Matters requiring protection. • Risk of encountering unexpected matters.	Project Manager	As per Training Plan	Training records	
5.	Briefings	CEMP 14	Environmental briefings shall emphasize site-specific control requirements.	General Superintendent	Prior to working in a specific area	Record of Briefing. (eg SEP Briefing)	
DESIGN OF PERMANENT WORKS							
6.	Stormwater design.	LU1, Part 3, Sect 3, SW5.1, pg 123, (Seq pg 136)	Adopt 'water sensitive' design principles in the development of the stormwater treatment system, as specified in the Urban Stormwater Best Practice Environmental Management Guidelines. Design the works so that any potentially contaminated site runoff is isolated from catchment run-off and treated using 'water sensitive' design practices prior to discharging into receiving waterways. A Stormwater Management Plan to be developed in order to ensure that flow rates from the site and easements are maintained at rural runoff rates, up to 1 in 2 year ARI, to protect the bank-full conditions and in-stream ecology of the receiving waterways	Design Director	Design phase	Verified and validated design. Water quality	

Ref.	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
7.	Toxic spills to be contained	LU1, Part 3, Sect 3, 3SW4.1, pg 122, (Seq pg 135)	Toxic material to be prevented from infiltrating into surface waters and the groundwater system. Design the capacity of the stormwater drainage system to contain toxic material volumes sufficient to meet any credible spill scenario, recognising incident response procedures.	Design Director	Design phase	Verified and validated design. Water quality.	
8.	Avoid groundwater	Project Requirement	Excavations shall, as far as practicable, avoid interception of groundwater.	Design Director	Design phase	Verified and validated design	
PRE-CONSTRUCTION							
9.	SEPs	Project Requirement	A detailed Site Environmental Plan (SEP) shall be developed for works adjacent to or in existing waterways.	Site Environmental Officer	Initial site preparation	Site Environmental Plan	
10.	Controls in place before work.	Vic EPA Publication 480	All soil and water protection controls must be implemented and functional prior to the commencement of work.	General Superintendent	Initial site preparation	Inspection records	
11.	Monitoring program	DIIS	Monitoring will be undertaken in accordance with BBA-PLA-1000-1400-001H-B-01 EMP Appendix H Monitoring and Inspection Program.	Environmental Manager	Ongoing	Monitoring records	
CONSTRUCTION							
12.	Discharge monitoring	LU, Part 3, 2ER 1.1 (e), pg 66 (seq pg 79) LU3, Part 3, ER 1.1 (e), pg 26 (seq pg 264) LU4, Part 3, ER 1.1 (e), pg 26 (seq pg 315)	Monitoring will include daily visual inspections. If a sediment basin appears likely to overflow within the next 24 hours, turbidity measurements will be made. If turbidity indicates a suspended solids concentration greater than 40 mg/L, flocculation will be used unless downstream filtration systems (eg. filter socks) are in place.	Site Environmental Officer	Ongoing	Inspection records	

Ref.	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
13.	Divert external water	Vic EPA Publication 480.	To the extent practicable, divert external (outside the works area) surface water away from the construction footprint using drainage structures, catch drains, bunds, silt fence, etc.	General Superintendent	Ongoing	Inspection records	
14.	Collect dirty site water	Vic EPA Publication 480.	Contaminated construction water shall be controlled using temporary drainage structures that are graded to fall to sediment basins for storage and treatment prior to discharge to receiving waters.	General Superintendent	Ongoing	Inspection records	
15.	Drains to be constructed to slow the speed of water	Vic EPA Publication 480.	Temporary drainage structures shall be designed to reduce runoff velocities by using wider inverts, check dams, silt fence and grassing completed areas.	General Superintendent	Initial site preparation	Site Environmental Plans	
16.	Limit the area of exposed soil	Vic EPA Publication 480.	Limit the area of disturbed land and exposed soil - progressively clear the site in accordance with construction needs and rehabilitate as soon as possible.	General Superintendent	Ongoing	Inspection records	
17.	Dewatering	Project Requirement	Dewatering of excavations shall be pumped to a temporary sedimentation basin or water cart. The foot valve of pumps shall be set above the bottom of the excavation so as to avoid pumping mud.	General Superintendent	Ongoing	Inspection records	
18.	Emptying sedimentation basins	LU, Part 3, 2ER 1.1 (b(ii), c & d), pg 66 (seq pg 79) LU3, Part 3, ER 1.1 (b(ii), c & d), pg 26 (seq pg 264) LU4, Part 3, ER 1.1 (b(ii), c & d), pg 26 (seq pg 315)	Discharge of treated water from sedimentation basins shall not cause scour at the area of discharge or re-suspension of sediment. Prior to discharge *BBA-FRM-1000-1400-0001 internal permit to discharge from pond* must be signed by the Site Environmental Officer and a copy given to pump operator.	General Superintendent	Ongoing	Inspection records	

Ref.	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
19.	Disposal of groundwater	Project Requirement	The quality of groundwater that enters the worksite must be checked before the method of disposal is adopted. The management of groundwater shall be undertaken in consultation with DTAE.	Environmental Manager	Ongoing	Consultation records	
20.	Impacts on groundwater to be avoided	Project Requirement	A groundwater monitoring program shall be implemented prior to the commencement of any construction activities that could potentially affect groundwater.	Environmental Manager	As required	Monitoring program	
21.	Groundwater reuse	LU1, Part 3, Sect 2, 2SW1.1, pg 66, (Seq pg 79) LU1, Part 3, Sect 3, 3SW3.1, pg 122, (Seq pg 135)	Should a sufficient volume of groundwater be collected/treated to warrant reuse, then this resource will be utilised where practicable (dust suppression, truck wash, etc), in preference to discharge to the environment.	General Superintendent	As required	Water reused	
22.	Identify suitable soil resources	Vic EPA Publication 480 Risk Register	Survey and identify soil resources suitable for storage and reuse based on the following criteria: ▪ Within the construction footprint. ▪ Outside areas of heritage values. ▪ Outside areas of vegetation significance. ▪ Minimal weed infestation. ▪ Native seed bank of local species.	Site Environmental Officer	Ongoing	Site Environmental Plan	
23.	Minimise disturbance	Project Requirement	Minimise the volume of soil disturbed or removed during clearing and grubbing.	General Superintendent	Ongoing	Inspection records	
24.	Locate stockpiles appropriately	Vic EPA Publication 480 Risk Register	All stockpiles shall be located away from existing waterways (10m), drainage lines, native flora, heritage and areas likely to flood. Silt fences should be used if necessary to minimise erosion loss.	General Superintendent	Ongoing	Inspection records	
25.	Stockpile design	Vic EPA Publication 480.	Soil suitable for use as topsoil shall be stockpiled (no higher than 3 metres) in low flat mounds (2:1 batters).	General Superintendent	Ongoing	Inspection records	

Ref.	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
26.	Soil handling	Project Requirement	Soil should not be handled when too wet and should not be worked excessively.	General Superintendent	Ongoing	Inspection records	
27.	Stockpile stabilisation	Project Requirement	Stabilise stockpile surface as soon as practicable and ensure drainage controls are completed.	General Superintendent	Ongoing	Inspection records	
INCIDENTS							
28.	Potential environmental harm	CEMP incident response procedures	Class 1: *An actual adverse effect on the health or safety of human beings that is of a high impact or on a wide scale; an actual adverse effect on the environment that is of a high impact or on a wide scale; an actual loss or property damage of an amount, or amounts in aggregate, exceeding ten times the threshold amount ($5,000); an environmental nuisance of a high impact or on a wide scale; an actual adverse effect on the health or safety of human beings that is not negligible; an actual adverse effect on the environment that is not negligible* - cease relevant activities across all sites until the problem is fully understood and rectified; follow incident response procedures Class 2: *The emission of a pollutant that unreasonably interferes with, or is likely to unreasonably interfere with, a person's enjoyment of the environment; any emission specified in an environment protection policy to be an environmental nuisance; an actual loss or property damage of an amount, or amounts in aggregate, exceeding the threshold amount ($5,000)* - cease relevant activities at the site of occurrence until the problem is rectified; follow incident response procedures	Environmental Manager	Ongoing	Incident response records	

Ref.	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
29.	Potential permit breach	CEMP incident response procedures	Class A: *A permit condition has been breached and either the environmental consequences are significant or the breach is due to a wilful or negligent failure to attempt to satisfy the condition* – cease relevant activities across all sites until the problem is fully understood and rectified; follow incident response procedures Class B: *A permit condition has been technically breached but the intent of the condition has been or will be achieved and environmental consequences of the breach are not significant* – cease relevant activities at the site of occurrence until the problem rectified; follow incident response procedures Class C: *Compliance with the permit has been raised as an issue but the intent and requirements established by the permit condition have been met* – examine the significance and potential for corrective action; follow incident response procedures	Environmental Manager	Ongoing	Incident response records	
EVALUATING PERFORMANCE							
30.	Monitoring	CEMP 16	Conduct construction monitoring as per BBA-PLN-1000-1400-001H Construction Monitoring Plan	Environmental Manager	Ongoing	Reports	
31.	Inspections	CEMP 16	Inspect the condition of protection and control measures and arrange maintenance, as required.	Site Environmental Officer	Daily	Weekly Checklist	
32.	Photo record	LU1, Part 3, Sect 2, 2DR1.2, pg 77, (Seq pg 90) LU3, Part 3, RH1.2, pg 36, (Seq pg 275) LU4, Part 3, RH1.2, pg 37, (Seq pg 326)	Assess and record (including photos at established photo points) areas disturbed during construction in regard to property specific requirements agreed with landowners.	Site Environmental Officer	Monthly	Photo records	

Ref.	Subject	Reference	Control Activity	Responsibility	Timing	Performance Measure	Audit Check
33.	Revegetation monitoring and maintenance – general areas	Project Requirement	Work site inspections will be undertaken at monthly intervals for 2 years from completion of primary rehabilitation. Thereafter inspections will be every 6 months for 2 years, unless otherwise agreed with landowners. If failure to rehabilitate has been detected in the 2 years then further monitoring is necessary for the next 2 years. Remedial maintenance requirements will be based on defects identified in the monitoring inspection. Where remedial maintenance is required, the monitoring and maintenance period shall continue until the rehabilitation is successful and self maintaining.	Environmental Manager	Following revegetation, during monitoring period	Inspection and action records	
34.	Revegetation monitoring and maintenance – highly unstable areas	Project Requirement	Monitoring of rehabilitated highly unstable areas shall be after significant rainfall events and at least each month in winter for 2 years from completion of primary rehabilitation activities, unless agreed otherwise with landowners.	Environmental Manager	Following revegetation, during monitoring period	Inspection and action records	
35.	Reporting	CEMP 17	Report on the implementation of this EP in the environmental section of the monthly Project Report.	Environmental Manager	Ongoing	Monthly report	
36.	Assess monitoring results	CEMP 19	Evaluate and assess monitoring results against specified targets.	Environmental Manager	Ongoing	Reports	
37.	Corrective action	CEMP 19	Take corrective action, where required.	Project Manager	As required	Action taken	

Revision Status

Revision	Date	Revision Description	Prepared	Reviewed	Approved
A0	27 April 2006	Draft for BBA review	IW		
A1	9 May 2007	Draft for DTAE review	IW		
B0	22 October 2007	Revised for submission to DTAE following auditor's comments	IW	JD	JC
B3	7 January 2008	Revised following DTAE comments	IW	JD	JC
B4	18 January 2008	Revised following DPIW comments	YE	JD	CF