Acid Sulfate Soil Management Sub-Plan

Cross River Rail – Rail, Integration and Systems Alliance

Project number:	Q01080
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Revision number:	04

Document Approval

Rev	Date	Prepared By	Reviewed By	Approved By	Remarks
A	28/06/2019	UNITY – Environment Manager	UNITY – Delivery Manager		IFR
B	24/10/19	UNITY – Environment Manager	UNITY – Delivery Manager		IFR
C	28/11/19	UNITY – Environment Manager	UNITY – Delivery Manager	UNITY – Environment Manager	IFU
00	24/01/20	UNITY – Environment Manager	UNITY – Delivery Manager	UNITY – Environment Manager	IFU
01	26/07/20	UNITY – Senior Environmental Advisor	UNITY – Environment Manager		IFR
02	07/09/20			UNITY – Environment Manager	IFU
03	26/08/21	UNITY – Senior Environmental Advisor	UNITY – Environment Manager		IFR
04	05/10/21			UNITY – Environment Manager	IFU
Signature:				[redacted]	

Plan Control

This Acid Sulfate Soil Management Sub-Plan (the plan) has been developed for the Cross River Rail – Rail, Integration and Systems Project.

Approvals, Revisions and Amendments

Plan approval is in accordance with Section 4.1.2 of the Construction Environmental Management Plan (C-EMP).

Plan reviews and updates are in accordance with Section 7 and Section 8.1 of the C-EMP.

Revision Details

Revision	Remarks
A	Final C-EMP for Review and endorsement by the Environmental Monitor
B	Incorporating review comments from the Independent Environment Monitor dated 30 September 2019
C	Incorporating review comments from the Independent Environment Monitor dated 04 November 2019
00	Plan updated to include Hold Point process for unrestricted endorsement
01	6 monthly review and updated to incorporate changes linked to RfPC-7 and Updated O-EMP The update does not include new or additional Relevant Project Works
02	Issued for Use
03	Issued for review to the IEM 6 monthly review No updates required because of: • RfPC-11, and • The addition of the Southern Area Scope of Works (Dutton Park and Buranda, Excluding Buranda Cross Over B3)
04	IFU

1 Purpose of this Plan

This sub-plan has been prepared to comply with:

- Coordinator-General's Conditions of Approval – Appendix 1 – Part C:
  - Condition 19(a)
  - Conditions 15(a) and 15(b)
  - Conditions 16(a), 16(b) and 16(c)

as they relate to water management and quality of surface water and groundwater that may be affected by disturbance of acid sulfate soils

- Final Outline-Environment Management Plan (O-EMP) – Outline Acid Sulfate Soil Management Plan.

Component	Details
Environmental Outcome(s)	• Acid sulfate soils (ASS) must be managed in accordance with the methods and requirements of the latest edition of the Queensland Acid Sulfate Soil Technical Manual (QASSIT) • Project water quality objectives are consistent with the frameworks established by the Imposed Condition 18, *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* and *Qld Water Quality Guidelines* in relation to background conditions • Discharge of surface water and groundwater from RIS works aim to achieve the relevant water quality objectives established for the project in order to protect the environmental values of receiving waters • Project works must be designed, planned and implemented to avoid, where practical, and otherwise minimise the inflow of groundwater to the project works, including excavations having regard for the predictive modelling • Construction activities should avoid or minimise environmental and public health risks associated with disturbance of potential ASS encountered during construction works. • Construction activities do not impact on the environmental values of the Brisbane River and other waterways within the study corridor
Relevant Area	• Mayne Yard • Breakfast/Enoggera Creek enhanced alignment • Alluvial Channels in Exhibition Station • Clapham Yard – Moolabin/Rocky Water Holes Creek Area • Rocklea Station •
Relevant Works / Activities	• Subsurface disturbance works resulting in the removal of spoil material in known or suspected areas of PASS/AASS material, such as excavations, piling, trenching, remove and replace • Dewatering works (especially groundwater or trapped surface water in open excavations) required in known or suspected areas of PASS/AASS material
Performance Criteria	• ASS is avoided where practical, or if intercepted is managed to avoid adverse impact to environmental values, infrastructure, construction equipment, construction personnel or the public • Runoff and discharges from worksites are consistent with project environmental objectives established in accordance with Imposed Condition 18, *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* and *Qld Water Quality Guidelines*, and do not negatively affect the background conditions of the receiving waters • Monitor and report on water quality during construction, in accordance with the Water Quality Management Plan, a sub-plan of the C-EMP.
Sustainability	Dis-1; Eco-1.
Mitigation Measure	• An ASS investigation is undertaken in accordance with QASSIT guidelines. • The details of the investigation program are documented in a Sampling and Analysis Quality Plan (SAQP) • Upon completion of the ASS investigation, results are used to: – prescribe treatment methods and monitoring requirements detailed in a supplementary ASSMP and transferred into the relevant SEPs and Workpacks – avoid disturbance of Potential / Actual ASS materials wherever possible through design and construction planning. • A supplementary ASS management plan (ASSMP or equivalent) is developed that includes part or all the following information: – Site setting details, such as topography, sensitive receiving environments, groundwater, geology, previous investigations, groundwater assessment – Summary of the location of AASS, PASS and naturally acidic soils and a risk rating of the area

Component	Details
	– Presence of acidic groundwater and risk rating of the groundwater zones – General requirements – Identified ASS materials – Confirmed non-ASS materials – Dewatering and water discharge – Responsibilities of key construction personnel in the management of ASS – Non-conformance and corrective actions – Auditing requirements – Community relation requirements – Training requirements of site personnel in the basic recognition of ASS – Procedures such as: o Characterisation of suspected ASS material o Stockpiling, handling and transportation of ASS o Treatment and verification of excavated ASS o Dewatering management/monitoring o Discharge water quality monitoring. • During development of Workpacks and SEPs, the relevant management measures from the supplementary ASSMP (or equivalent) are incorporated in the SEPs and Workpacks • Prior to the Relevant Project Works commencing a supplementary ASSMP (or equivalent) prepared by a Suitably Qualified Person is provided to the Environmental Monitor with sufficient notice to demonstrate compliance with Conditions 4c(ii) and 19. • The Relevant Project Works are not be authorised to commence until the detail required under Condition 4c(ii) has been provided. • Should areas of unidentified potential ASS be identified through construction activities, the Supervisor will immediately notify the Environmental Manager to assist in further investigation, and to prescribe interim control measures (e.g. lime application) until actual risks are quantified • Management measures to avoid human health exposure will include: – Avoidance of ASS where possible – Where ASS is disturbed, treatment (in accordance with ASS Investigation outcomes) to occur as soon as practicable to minimise potential odours to workforce and sensitive receivers – Incorporation of appropriate workplace health and safety measures to avoid exposure to highly alkaline neutralising agents such as hydrated lime Ca(OH)2 and quicklime CaO. • In areas where ASS has been identified, site specific SEP and ESC-P are developed for each work area, taking into account findings from the ASS investigations. The SEP and ESC-P must include measures such as, but not limited to: – Containment of ASS affected waters, – Management of run-off from site, – Locations of treatment pads – Liming rates – Surface Waters (including trapped water) and Groundwater Monitoring regimes • Trapped waters proposed for release to the receiving environment are: – Tested prior to release to ensure waters comply with parameters included in the Water Quality and Waterways Management Plan, relevant supplementary Contaminated Land and acid sulfate soils Management Plans – Released under an internal Permit to Dewater approved by the Environmental Team.

Component	Details
Monitoring	Monitoring is undertaken in accordance with the Construction Monitoring Program (attachment 4 of the C-EMP). Where additional monitoring is triggered based on the supplementary ASSMP (or equivalent) the details of the monitoring will be included in the relevant Workpacks and SEPs
Reporting	Reporting is undertaken in accordance with Section 8.2 of the C-EMP.
Corrective Action	Management of corrective actions will be undertaken as per Section 6 of the C-EMP.
Auditing	As per Section 7 of the C-EMP.