

11. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

Introduction

- 11.1 This section further elaborates the requirements of environmental monitoring and audit (EM&A) for the construction and operation of the Project, based on the assessment results of various issues. The following sections summarize the recommended EM&A requirements. Details of the EM&A programme and the specific monitoring requirements are presented in a stand-alone EM&A Manual issued separately.

Landscape and Visual Impact

Mitigation Measures

- 11.2 Potential landscape and visual impacts have been carefully considered during the development of the Project design to (1) avoid impacts on important landscape resources as the first priority; and (2) locate, design and reduce the physical extent of works as far as possible, as well as identify mitigation measures, so as to minimize the degree of visual impacts and the impacts on existing trees and open spaces.
- 11.3 Mitigation measures proposed in the EIA for the construction and operation phases are presented in Section 13. The construction phase mitigation measures should be adopted throughout the entire construction period while the mitigation measures for the operation phase should be adopted during the detailed design stage and be built as part of the construction works so that they are in place during the commissioning of the Project.
- 11.4 Any potential conflicts among the proposed mitigation measures, the Project works, and operational requirements should also be identified and resolved at early stage. Any changes to the mitigation measures should be incorporated in the detailed design.

Audit Requirements

- 11.5 Site audit should be undertaken during the construction phase of the Project to check that the proposed landscape and visual mitigation measures are properly implemented and maintained as per their intended objectives. Site inspections should be conducted jointly by the contractor, Engineer's Representative (ER) and Environmental Team (ET) during the construction period.

Air Quality Impact

Construction Phase

- 11.6 With the implementation of the dust suppression measures stipulated in the Air Pollution Control (construction Dust) Regulation, good site practices and proposed mitigation measures, no adverse 1-hour, 24-hour and annual dust impact would be expected at the ASRs in the vicinity of the construction sites. Routine 24-hour dust monitoring requirements are recommended in the EM&A Manual to ensure the efficacy of the control measures.

Operation Phase

- 11.7 Neither adverse air quality nor implication from the operation of the Project is expected. Thus, environmental monitoring is considered unnecessary.

Airborne Noise Impact

Construction Phase

- 11.8 Construction noise impacts from this Project would be expected at noise sensitive receivers (NSRs) identified in this EIA. Appropriate mitigation measures would be required in order to alleviate the impacts to meet the EIAO-TM criteria. Noise monitoring during construction phase needs to be carried out to ensure that such mitigation measures would be implemented properly.
- 11.9 Noise monitoring should be carried out at the designated monitoring stations with the measurement being undertaken at a minimum logging interval of 30 minutes. Prior to the commencement of the Project, baseline monitoring should be measured for a continuous period of at least 14 consecutive days. Ad hoc noise monitoring should also be carried out if necessary.

Operation Phase

- 11.10 Provided that the fixed plants are properly designed to meet the maximum allowable sound power levels (SWLs) recommended in this EIA Report, no adverse operation residual noise impact is envisaged.
- 11.11 Upon the operation phase of the Project, rail noise monitoring should be conducted to ensure compliance of the operational airborne railway noise levels with the stipulated noise criteria. The testing results should be checked and verified by the ET and Independent Environmental Checker (IEC) respectively.

Ground-borne Noise Impact

Construction Phase

- 11.12 Owing to the large setback distance from the tunnel works, ground-borne noise impact was found to be insignificant at NSR. Therefore, environmental monitoring is considered not necessary during construction phase.

Operation Phase

- 11.13 Prior to the operation phase of the Project, a commissioning test should be conducted to ensure compliance of the operational ground-borne rail noise levels with the noise criteria.

Water Quality Impact

Construction Phase

- 11.14 Minimisation of water quality deterioration from land-based construction activities could be achieved through implementing adequate mitigation measures. No surface water monitoring is proposed. However, it is recommended that regular site inspections should be undertaken to inspect the construction activities and works areas in order to ensure the recommended mitigation measures are properly implemented.

Operation Phase

- 11.15 No adverse water quality impact was identified during the operational phase with proper implementation of the recommended mitigation measures. Operational phase water quality monitoring is considered not necessary.

Waste Management Implication

Construction Phase

- 11.16 It is the Contractor's responsibility to ensure that all the waste produced during the construction of the Project are handled, stored and disposed of in accordance with good waste management practices, relevant legislation and waste management guidelines. The Contractor would also be responsible for the implementation of any mitigation measures to minimize waste or mitigate problems arisen from waste materials.
- 11.17 Regularly audit should be conducted during the construction stage to determine if wastes are being managed properly. The audit should look at all aspects of on-site waste management practices including waste generation, storage, recycling, transport and disposal. Apart from site inspection, documents including licences, permits, disposal and recycling records should be reviewed and audited for compliance with the legislation and Contract requirements.
- 11.18 A Waste Management Plan, as part of the Environmental Management Plan should be prepared in accordance with ETWB TC(W) No.19/2005 and submitted to the ER for approval. The recommended mitigation measures should form the basis of the Waste Management Plan. The monitoring and auditing requirement stated in ETWB TC(W) No.19/2005 should be followed with regard to the management of C&D materials.

Operation Phase

- 11.19 With the implementation of good waste management practices, no adverse environmental impacts would be anticipated. Waste monitoring and audit programme for the operation phase of the Project will not be required.

Land Contamination

- 11.20 No specific EM&A requirements would be required for land contamination issue.