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TIMOR LESTE BRANCH ROADS PROJECT 2

(TLBRP2)

Updated Environmental and Social Management Plan (ESMP)/Environmental Management Plan (EMP) of Ugrading 12-km Aituto – Hatubuilico Junction Road

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Abbreviations and Acronyms

ANLA	*Agência Nacional de Licenciamento Ambiental* (National Environmental Licensing Agency)
ANM	*Autoridade Nacional de Minerais* (National Mineral Authority)
AoI	Area of Influence
BMP	Biodiversity Management Plan
CEDAW	Convention Against All Forms of Discrimination Against Women
CESMP	Contractor Environmental and Social Management Plan
CHA	Critical Habitat Assessment
CMIP6	Coupled Model Intercomparison Project Phase 6
DED	Detailed Engineering Design
DL	Decree-Law
E&S	Environmental and Social
EHS	Environmental Health and Safety
EIA	Environmental Impact Assessment
ELL	Environmental Licensing Law
EMP	Environmental Management Plan
ESCOP	Environmental and Social Codes of Practice
ESCP	Environmental and Social Commitment Plan
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESRS	Environmental and Social Review Summary
ESSs	Environmental and Social Standards
FPIC	Free, Prior and Informed Consent
FS	Feasibility Study
GBV	Gender-Based Violence
GFPP	Grant Facility for Project Preparation
GIIP	Good International Industry Practice
GoTL	Government of Democratic Republic of Timor Leste
GRM	Grievance Redress Mechanism
IBAT	Integrated Biodiversity Assessment Tool
IDA	International Development Association
ILO	International Labor Organization
IP	Indigenous People
IPCC	Intergovernmental Panel on Climate Change
IPP	Indigenous Peoples Plan
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Area
LMP	Labor Management Procedures
MPW	Ministry of Public Works
NAP	National Adaptation Plan
NDC	Nationally Determined Contribution
OHS	Occupational Health and Safety
PCR	Physical Cultural Resources
PMU	Project Management Unit
PPE	Personal Protective Equipment
RAP	Resettlement Action Plan
ROW	Right of Way
SEA	Sexual Exploitation and Abuse
SEIS	Simplified Environmental Impact Statement
SEP	Stakeholder Engagement Plan

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SH	Sexual Harassment
TA	Technical Assessment
TLBRP	Timor-Leste Branch Roads Project
TOR	Terms of Reference
WBG	World Bank Group
WGM	Workers Grievance Mechanism
WHO	World Health Organization
WMP	Waste Management Plan

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1. Introduction

1.1. Background

The Government of Timor-Leste, through the Ministry of Public Works (MPW), is preparing the Second Timor-Leste Branch Roads Project (TLBRP2) with financing from the World Bank through International Development Association (IDA) Fund. The Project aims to improve the climate resilience, safety, and year-round functionality of the Gleno–Maubisse road corridor, which provides essential access to rural communities, agricultural production areas, and tourism destinations in western Timor-Leste. The proposed investment includes upgrading of (i) approximately 12 km of the Aituto–Hatubuilico Junction Road and (ii) approximately 5.4 km of the Hatubuilico Junction–Ramelau Sanctuary Road, together with associated construction supervision and maintenance arrangements.

The road section traverses steep mountainous terrain, requiring upgrading and rehabilitation of pavement, selective widening, improved drainage and culverts, slope-stabilization and bioengineering measures, road-safety improvements, and the management of temporary and ancillary facilities. These activities would generate environmental and social risks associated with erosion, sedimentation, landslides, vegetation clearance, spoil and waste, worker and community health and safety, traffic disruption, labor and working conditions, temporary land use and stakeholder concerns. The Project has therefore been classified as having a Substantial environmental and social risk rating under the World Bank Environmental and Social Framework (ESF). Therefore, the Project is subject to preparing an Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP). For the Aituto–Hatubuilico Junction Road, an updated ESMP is prepared (this document), translating the findings and commitments of the updated Environmental and Social Impact Assessment (ESIA) into practical measures for managing potential E&S risks and impacts.[1] As for the 5.4-km Hatubuilico Junction–Ramelau Sanctuary Road, the E&S assessment will be prepared separately from this document, following the Detailed Engineering Design (DED) that will be undertaken during project implementation.

1.2. Objectives and Scope

The objective of this updated ESMP is to provide an actionable framework for avoiding, minimizing, mitigating and, where necessary, remedying adverse environmental and social impacts while enhancing positive project outcomes. It defines the mitigation, monitoring, reporting and corrective-action requirements to be applied throughout the project's cycle, from pre-construction, construction, through to operation and maintenance. It also establishes responsibilities, implementation arrangements, training requirements, performance indicators, budgets and documentation needed to demonstrate implementation of the ESMP and compliance with applicable Timor-Leste law and legislation as well as the project's Environmental and Social Commitment Plan (ESCP).

The ESMP applies to the Project's direct and indirect areas of influence, including the road right-of-way (ROW) and work sites, drainage and watercourse crossings, cut and fill slopes, access routes, borrow and quarry sources, spoil-disposal areas, crushing and batching facilities, material stockpile

[1] ESIA/SEIS and ESMP/EMP was prepared for the Project in 2019 under the former World Bank's Safeguard Policy

and laydown areas, workshops, workers' camps and other temporary facilities set up by the contractor. It covers the activities of MPW, and its Project Management Unit (PMU), supervision consultants, contractors including associated subcontractors and suppliers engaged in Project delivery. The ESMP addresses environmental protection; pollution prevention and resource efficiency; biodiversity and vegetation management; occupational and community health and safety; traffic and road safety; labor management and worker conduct; land access and livelihood disturbance; cultural heritage and chance finds; stakeholder engagement; grievance management; emergency preparedness; and monitoring, incident notification, and reporting.

A comprehensive assessment of the environmental and social risks and impacts associated with the TLBRP2, particularly the 12-km Aituto – Hatubuilico Junction Road corridor is presented in the draft of updated ESIA (2026). It also identifies measures to avoid, minimize, mitigate, or otherwise manage these risks and impacts. The updated ESIA and ESMP should therefore be read together to ensure a complete understanding of the potential risks and impacts and the measures and monitoring plan established to mitigate them.

1.3. Disclosure

The ESMP will be disclosed by MPW through channels that are accessible to affected communities and other interested parties before the commencement of relevant Project activities. Disclosure will include publication through appropriate government and Project information channels and the World Bank's external disclosure platform, together with locally accessible copies at suitable municipal, administrative-post or community locations. Key information will be presented in languages and formats appropriate to the intended audience, including non-technical summaries and verbal or visual communication where literacy or access constraints require them.

Disclosure is an ongoing process. Material revisions to the ESMP and approved site-specific plans will be communicated to affected people in a timely manner, and stakeholders will be informed of construction schedules, anticipated impacts, mitigation measures, traffic or access changes, employment-related information, emergency contacts and available grievance channels. Feedback received through consultation and the Project grievance mechanism will be documented and considered in implementation and adaptive management, while personal information and sensitive complaints will be handled confidentially and in accordance with applicable requirements.

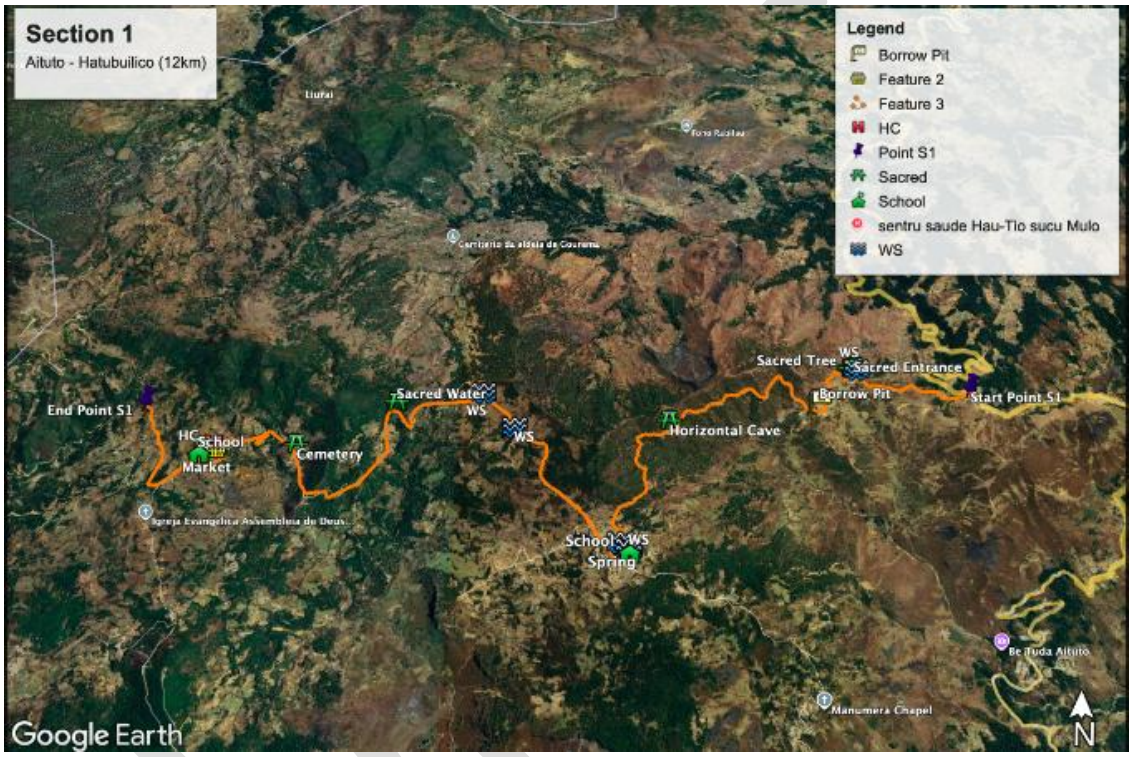
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2. Project Description

2.1. Overview of Proposed Works

This section provides an overview of the proposed rehabilitation and improvement works for the 12-km Aituto–Hatubuilico Junction Road. This road corridor will be upgraded to national road standards, with a 6-metre carriageway, 2-metre shoulders**,** and 1-metre drainage facilities. The proposed works include pavement upgrades, selective widening, culvert and drainage improvements, slope-stabilization structures, bioengineering measures, bridge-related activities, and road-safety improvements.

Map 1. Aituto – Hatubuilico Junction Road (12 km)



The Contractor will be required to prepare and implement a Construction Environmental and Social Management Plan (CESMP), in accordance with contractual obligations and to the satisfaction of the PMU and the World Bank. This will include the management and disposal of soil, debris, and other obstruction materials at designated and approved locations, and ensuring that such materials are not left at Project sites. The Contractor will remove structures and obstructions, either wholly or in part, and will backfill associated trenches and pits as required.

The Project activity will involve clearing the existing carriageway of surplus materials and obstructions, including trees, stones, stumps, and unstable slopes. Suitable topsoil will be stockpiled for later reuse. Roots, logs, vegetation, waste, and other debris will be disposed of at designated and approved locations. Timber from affected trees will be returned to the owners for reuse, following payment of applicable compensation.

Utility relocation is likely to be required in certain sections of the Project corridor. The affected utilities are expected to include power lines, community water-supply lines, and water tanks. Relocation of

power lines will generally be undertaken by EDTL (*Electricidade de Timor Leste*), while relocation of community water-supply lines and reconstruction of water tanks will be supported by the Contractor. All relocation works will be approved by the PMU in consultation with affected communities and relevant utility owners. Where necessary, temporary or replacement utilities will be provided by the Contractor, subject to permission from the utility owners and affected communities.

During the pre-construction stage, the Contractor will be responsible for preparing a Construction Environmental and Social Management Plan (CESMP). The CESMP will provide a detailed, and site-description of how the Contractor will implement the Environmental and Social Management Plan (ESMP). Specifications and guidance for preparation of the CESMP are provided in the ESMP.

Drainage structures within the Project area include culverts and roadside ditches. Some culverts connect to natural waterways, including small tributaries that flow downstream. Several culverts are currently in poor condition or structurally vulnerable due to previous landslides and cracking. The detailed engineering design will assess these drainage structures and incorporate appropriate measures for runoff management, including culverts and lined drains. Where required, existing drainage structures will be cleaned, repaired, or replaced.

Table 1. Overview of Proposed Works

DESCRIPTION	UNIT				
		ROAD	DRAINAGE	BRIDGE	TOTAL
EARTHWORK:					
Clearing and Grubbing	ha.	18.5			18.5
Individual Removal of Trees, Small (150mm dia-900mm dia)	each	835			835
Individual Removal of Trees, Large (over 900mm dia)	each	30			30
Removal and Disposal of Existing Asphalt Pavement	sq.m.	4,800			4,800
Removal of Existing Stone Masonry Retaining Wall	l.m.	3,860			3,860
Removal of Existing Gabions	cu.m.	220			220
Surplus Common Excavation	cu.m.	236,100			236,100
Surplus Hard Rock Excavation	cu.m.	123,600			123,600
Surplus Soft Rock Excavation	cu.m.	239,400			239,400
Embankment from Roadway Excavation, Common Materials	cu.m.	47,200			47,200
Embankment from Selected Borrow (Granular Materials)		18,275			18,275
Subgrade Preparation (Common materials)	sq.m.	84,200			84,200
Subgrade Preparation (Existing Asphalt Pavement)	sq.m.	38,700			38,700
SUBBASE AND BASE COURSE:					
Aggregate Subbase Course	cu.m	17,150			17,150
Crushed Aggregate Base Course	cu.m.	16,800			16,800
SURFACE COURSE:					
Bituminous Prime Coat, (Cutback Asphalt, Grade MC-70)	tonne	180			180
Bituminous Tack Coat, Emulsified Asphalt SS-1	tonne	0.05			0.05
Bituminous Concrete Surface (Wearing) Course, Hot Laid (50mm thick)	tonne	13,275			13,275

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BRIDGE CONSTRUCTION					
- HAUSPEHAN FLAT SLAB -					
Removal of Existing Bridge (L=5.50m)	l.s.			1	1
Bridge Excavation, Common Materials	cu.m.			779	779
Structural Backfill	cu.m.			213	213
Concrete Bridge Railing	lm.			16	16
Structural Anchor Bolt, 25mm dia. x 1000mm	each			10	10
Reinforcing Steel , Grade 40 (Bridges)	kg.			32,257	32,257
Structural Concrete Class A for bridge	cu.m.			271	271
Lean Concrete	cu.m.			11	11
Elastomeric Bearing Pad, Duro 60 (400 x 500 x 25mm)	each			12	12
Elastomeric Bearing Pad, Duro 60 (200 x 200 x 25mm)	each			10	10
Preformed Elastomeric Compression Joint Seals (50mm,thick)	lm.			20	20
Grouted Riprap, Class A	cu.m.			16	16
Stone Masonry	cu.m.			70	70
Detour Road	l.s.			1	1
Metal Drain Pipe (150mm dia. x 800mm G.I.Pipe)	each			3	3
DRAINAGE & SLOPE PROTECTION STRUCTURES:					
Structure Excavation, Common Materials	cu.m.		8,934		8,934
Structural Backfill	cu.m.		517		517
Reinforcing Steel , Grade 40 (for Drainage)	kg.	65,600	54,810		120,410
Structural Concrete Class A (for Drainage)	cu.m.		308		308
Lean Concrete	cu.m.		20		20
Reinforced Concrete Pipe Culvert (1 - 610mm dia.)	l.m.		109		109
Reinforced Concrete Pipe Culvert (1 - 910mm dia.)	l.m.		317		317
Reinforced Concrete Pipe Culvert (1 - 1070mm dia.)	l.m.		173		173
Reinforced Concrete Pipe Culvert (2 - 1070mm dia.)	l.m.		13		13
Reinforced Concrete Pipe Culvert (1 - 1220mm dia.)	l.m.		150		150
Reinforced Concrete Pipe Culvert (2 - 1220mm dia.)	l.m.		22		22
Reinforced Concrete Pipe Culvert (1 - 1520mm dia.)	l.m.		103		103
Reinforced Concrete Pipe Culvert (2 - 1520mm dia.)	l.m.		36		36
Underdrain, 200mm dia. PVC Pipe	l.m.		300		300
Catch Basins, 1-910mm dia. RCPC	each		16		16
Catch Basins, 1-1070mm dia. RCPC	each		2		2
Catch Basins, 1-1220mm dia. RCPC	each		1		1
Catch Basins, 2-1220mm dia. RCPC	each		1		1
Catch Basins, 1-1520mm dia. RCPC	each		1		1
Catch Pit	each		24		24
Grouted Riprap, Class A	cu.m.		5,239		5,239
Stone Masonry	cu.m.	78,875	2,280		81,155
Gabions	cu.m.	5,000	4,420		9,420
Reinforced Concrete Ditch with Monolythic Cover	l.m.		1,019		1,019
Concrete Lined Semi-Circular Ditch	l.m.		800		800
Underdrain on Side Ditch	l.m.		150		150

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MISCELLANEOUS STRUCTURES:					
Concrete Sidewalk	sq.m.	100			100
Steel Railing (Side Walk)	l.m.	1,475			1,475
Maintenance Marker Posts	each		2,159		2,159
Kilometer Post	each	11			11
Metal Guardrail (Metal Beam) including Galvanized Steel Post	l.m.	323			323
Metal Beam End Piece (Rounded with anchor)	each	16			16
Warning Signs (Diamond Shape)	each	24			24
Regulatory Signs (R1-2 & R2-1)	each	7			7
Informatory Signs, (2000 x 1000mm)	each	2			2
Informatory Signs, (2300 x 1000mm)	each	2			2
Informatory Signs, (2450 x 1000mm)	each	3			3
Informatory Signs, (Assembly Type 1)	each	4			4
Informatory Signs, (Assembly Type 2)	each	8			8
Warning Signs, Chevron	each	142			142
Reflectorized Thermoplastic Pavement Markings (White)	sq.m.	2,800			2,800
Reflectorized Thermoplastic Pavement Markings (Yellow)	sq.m.	2,350			2,350
Reflectorized Thermoplastic Pavement Markings (Pedestrian Crossing)	sq.m.	150			150
Reflectorized Thermoplastic Pavement Markings (Rumble Strip)	sq.m.	110			110
BIO - ENGINEERING WORKS:					
Nursery Establishment Operation and Management	l.s.	1			1
Grass Slips Production	sq.m.	94,500			94,500
Slope Trimming and Preparation	sq.m.	94,500			94,500
Planting of Grass Slips (Vetiver Grass)	sq.m.	94,500			94,500
Coconet Bio-Engineering on Prepared Slopes	sq.m.	89,000			89,000

2.2. Ancillary Works and Sites

2.2.1. Aggregate Sourcing

Aggregates will be sourced locally, including for the road pavement sub-base (17,150 m^3) and base course (16,800 m^3). The DED has identified a potential source at KM 1+680, located approximately 32 m from the left-hand side of the road as shown in the figures below. The estimated available quantity at this location is 22,500 m^3. During implementation, the Project will identify and assess alternative sources as required to meet the necessary material quantities. Quarry site(s) will be selected in accordance with applicable national environmental licensing requirements and ESMP.

An initial assessment of the potential material source at KM 1+680 indicates that the site is suitable from an environmental and social (E&S) perspective. Its development is not expected to affect water

sources or active farmland, require significant vegetation clearance, or involve steep terrain. The PMU, with support from the supervision consultant, will undertake further due diligence on land tenure and access to ensure that no unresolved land-access or compensation issues arise. Before the site is finalized, the PMU and supervision consultant will also consult the local community and screen the surrounding area for cultural heritage resources.

Map 1. Location of Potential Borrow Pit





2.2.2. Construction Laydown Site

Laydown sites—also referred to as construction camps or temporary works areas—are expected to include project offices, storage and stockpile areas, concrete batching facilities, crushing plant facilities, and other associated temporary infrastructure required to support construction activities.

The number, footprint, and final locations of laydown sites and crushing plant facilities have not yet been confirmed and will be determined during implementation.

Potential laydown site locations will be identified by the Contractor and assessed through the Contractor's Environmental and Social Management Plan (CESMP). Each proposed site will be subject to environmental and social screening by the Contractor, with verification by the PMU, prior to approval. The PMU will approve only those sites that comply with the requirements of the ESMP, avoid or minimize environmental and social risks and impacts, and meet all applicable land access, community health and safety, and environmental management requirements.

Concrete batching plants and crushing plants will be located at least 150 m from the nearest residential settlement and at least 100 m from any water body, unless a more stringent requirement is identified through site-specific screening or national permitting conditions. The final location, layout, operating arrangements, and footprint of these facilities will be described in the CESMP and approved before establishment.

The size of laydown sites will be limited to the minimum area required for safe and efficient construction operations. Sites will be fenced, access will be controlled, and materials, equipment, fuels, chemicals, and wastes will be stored securely to prevent unauthorized access, accidental release, theft, or unsafe use by non-authorized persons.

Before any crushing plant is established, the Contractor will assess potential nuisance and community health and safety risks, including noise, dust, traffic, vibration, runoff, and occupational health and safety hazards. Where feasible, crushing plants will be located away from residential areas and sensitive receptors to avoid or minimize adverse social and environmental impacts. The proposed location and site-specific mitigation measures will be clearly identified in the CESMP and will be subject to PMU review and approval.

Planning, establishment, operation, and demobilization of laydown sites, batching plants, and crushing plants will comply with the TLBRP2 ESMP and relevant World Bank Environmental and Social Framework requirements. The CESMP will detail the applicable mitigation, monitoring, supervision, emergency response, reinstatement, and site closure measures, including any additional measures identified through the Contractor's site-specific screening and risk assessment.

2.2.3. Workers' Accommodations

The requirement for a residential workers' camp has not yet been confirmed and will be determined during detailed construction planning. Should a workers' camp be required, it will be planned, established, operated, and decommissioned in accordance with the requirements of the TLBRP2 ESMP, including provisions relating to labor and working conditions, community health and safety, waste management, sanitation, water supply, security arrangements, and grievance management. The location, scale, layout, design, management arrangements, and decommissioning measures for any workers' accommodation will be detailed in the Contractor's Environmental and Social Management Plan (CESMP) and subject to review and approval by the Supervision Consultant and PMU prior to establishment.

Potential locations for workers' accommodation will be identified by the Contractor and assessed as part of the CESMP preparation process. Each proposed site will be screened for environmental and

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social risks and impacts, including proximity to communities, sensitive receptors, watercourses, land ownership and access arrangements, potential land acquisition or livelihood impacts, occupational health and safety risks, community health and safety considerations, and potential risks related to labor influx and worker–community interactions. The Contractor's screening findings will be verified by the PMU, with support from the Supervision Consultant. Only sites that are technically suitable, consistent with the ESMP requirements, lawfully accessed, and assessed as having acceptable and manageable environmental and social impacts will be approved for use.

2.2.4. Haulage

Movement of aggregates, construction materials, and equipment will primarily take place along the Section 1 road corridor. Although the road may be adequate for short-distance haulage, existing road conditions, together with the mountainous terrain, narrow carriageway sections, steep gradients, sharp curves, and limited passing opportunities, are expected to constrain longer-distance transport. Extended haulage movements may therefore be time-consuming, increase safety risks for other road users and roadside communities, contribute to traffic delays, and potentially affect the construction schedule. These risks will need to be managed through the CESMP, including a traffic and haulage management plan that defines approved haul routes, vehicle load limits, speed controls, delivery schedules, driver requirements, community safety measures, dust and noise controls, and procedures for maintaining safe access throughout construction.

2.2.5. Spoil Disposal Sites

Spoil disposal sites will be required for surplus excavated soil, rock, and other construction materials generated from slope cutting, road widening, drainage works, and other civil works. The anticipated volume of surplus material is estimated at approximately 475,500 m^3. The sites shall be identified, assessed, approved, and managed in accordance with national regulatory requirements and the ESMP. Site selection shall be informed by prior environmental and social screening, engineering assessment, land access due diligence, and meaningful consultation with affected communities and relevant authorities.

Preference for disposal sites is to be given to sites that are technically stable, already disturbed where feasible, accessible without creating additional significant impacts, and located away from sensitive environmental and social receptors. Prior to use, each proposed spoil disposal site shall be included in the CESMP, supported by site-specific management measures for access, slope stability, erosion and sediment control, drainage, traffic and community health and safety, dust and noise control, progressive stabilization, reinstatement, and closure. No disposal site shall be used until the required screening, consultations, land access arrangements, permits or approvals, have been completed.

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3. Consents and Permitting

Based on a comprehensive review and gap analysis between the Timor-Leste laws and legislation relevant to the Project and the Bank's Environmental and Social Standards (ESSs) undertaken as part of the updated ESIA, the following table summarizes the national consents and permits required for TLBRP 2, together with the supporting documentation that should be prepared.

Table 2. Key Permit and Approval Required for TLBRP2

Permit / approval	Authority / concurrence	Documentation	Agency Responsible for Applying	Timing
Environmental license — road works	National Authority for Environmental Licensing (ANLA)	Development Proposal Application; project plans and technical drawings; feasibility information; SEIS/ESIA; EMP/ESMP; consultation record; application form; fee receipt; license and conditions.	MPW/PMU	Before procurement/ works as applicable
Environmental license — quarry, borrow pit and aggregate extraction	National Mineral Authority (ANM)	Site plan, resource/production estimate, proof of land access, environmental assessment/EMP, rehabilitation and closure plan, supplier license copies.	Contractor; verified by PMU/Supervisio n Engineer	Before material extraction or supply
Asphalt, hot-mix, batching or crushing plant approval	ANLA	Site layout, process and capacity, emissions/ noise controls, fuel and chemical storage plan, fire and emergency plan, EMP, land agreement and operating license.	Contractor	Before mobilization/ operation
Land access, acquisition and temporary occupation approvals	MPW and relevant land administration/expr opriation authorities; landowners/users; municipal, suco and aldeia authorities; cultural and customary leaders (Rai Nain, etc.)	complete detailed measurement survey and updated asset inventory, Land tenure/ cadastral Due diligence, compensation agreement and valuation, temporary-use/ access agreement for ancillary sites, voluntary land donation documentation where permissible, and written sign-off from the Suco/customary leaders for any customary land.	MPW/PMU; contractor for temporary sites	Before possession or works in the affected area
Vegetation clearing / protected area	Relevant forestry, biodiversity/protect ed area and	Clearing limits, tree inventory, biodiversity screening, avoidance	MPW/PMU and Contractor	Before clearing

Permit / approval	Authority / concurrence	Documentation	Agency Responsible for Applying	Timing
or biodiversity clearance	environmental authorities; local land custodians	plan, restoration/replanting commitment and authority clearance.		
Spoil disposal approval	ANLA; local authority; landowner	Site-selection screening, landowner consent, disposal design, drainage/stability controls, and rehabilitation plan.	Contractor; verified by Supervision Engineer	Before disposal
Cultural heritage clearance	Cultural heritage authorities (Ministry of Higher Education, Science, and Culture and other relevant parties); local authorities; and cultural and customary leaders (Rai Nain, etc.)	Cultural heritage screening, avoidance/mitigation agreement, Chance Find Procedure (CFP) with documentation, notification and written clearance/release (for a site of possible national or local interest, assent from the Advisory Committee on Cultural Heritage)	PMU/Contractor	Before works at sensitive sites and after any find

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4. Stakeholder Engagement

4.1. Public Consultations to Date

As mentioned in the ESIA, stakeholder engagement to date has mainly occurred as part of the broader Gleno-Maubisse road project, rather than specifically for the 12-km Aituto – Hatubuilico Junction Road. A project-awareness-level series of consultations was held across 11 sucos (village) in 2018 along the Gleno–Maubisse corridor, including Horai-Quic, Mulo and Nunumoge. The stakeholders consulted for the Project included project-affected parties (PAPs) such as communities, local authorities, suco leaders, customary leaders, national authorities, agricultural and forest institutions, educational institutions, and other interest groups. The resettlement team also conducted ad hoc consultations, focus group discussions, and meetings with potentially affected parties before conducting the Land Acquisition and Resettlement (LAR) impacts assessment.

During those consultations, communities raised several concerns about road alignment, and the team has since taken measures to address them. In Horaiquic and Mulo, communities asked for specific measures to avoid impacts and protect the Uma Lulik, publicly owned cultural heritage sites (sacred water and trees), and public water sources. The Mulo Suco Chief also identified critical landslide spots and recommended that a soil and landslide expert assess them. Meanwhile, in Nunumoge, the input was to extend the alignment from the Hatobuilico intersection. In response to those inputs, the DED has included realignments at the Aituto entrance to avoid impacts on the Uma Lulik, permanent houses, sacred tree and sacred water, and public water sources, which will be protected before civil works begin. The PMU has also discussed the possibility of scaling up the project's benefits from the extension, although this may not be included under this project.

Another suco-level consultation was held in August 2022 to disclose and discuss the LARAP, ESIA, and GBV mitigation measures for the broader Gleno-Maubisse corridor. The consultation involved local authorities and community representatives in several Sucos, including Suco Nunumoge and Suco Mulo in Section 1, with the main agenda being to disclose and discuss the resettlement/land-acquisition process and compensation, environmental mitigation measures, GBV/SEA risks, the Code of Conduct, local GBV service providers, and how to access the GRM.

A specific round of engagement for Section 1 was carried out in September 2026 alongside the field observation, but it was limited to introductory awareness and gathering baseline information from Suco authorities in the affected Sucos, field observation along the corridor, and a sample census with affected parties to provide input for LARAP. Based on this round of engagement, the Suco authorities welcomed and supported the project and expressed no concerns, noting that the community has waited many years for this road and that they had already heard about the project in 2019. They also expressed understanding of the compensation arrangement, confirmed their support for the assessment, and guaranteed that no new construction or activity would take place in the affected areas.

4.2. Stakeholder Engagement and Consultation Plan

A series of stakeholder engagement activities shall be carried out soon under the draft Project's Stakeholder Engagement Plan (SEP), which has been prepared in accordance with ESS10. The SEP is guided by principles of early and continuous engagement, openness and transparency, informed

participation and feedback, inclusiveness, respect for culture and rights, and meaningful two-way dialogue.

The PMU coordinator is responsible for overall SEP oversight of the Project. Meanwhile, the person in charge of SEP Implementation at the site-level will be incorporated as the task of the Construction Supervision Consultant (CSC), including stakeholder engagement activities, including consultation planning, disclosure coordination, GRM management, as well as monitoring and reporting SEP implementation. Supervisory Consultant will support community liaison at project sites and verify Contractor engagement performance during construction. Contractor Community Liaison Officer (CLO) or the Social Officer will be responsible for day-to-day community liaison and consultation during construction, coordination with suco chiefs, and support to the community GRM.

The consultation will involve project stakeholders who are affected by the project, other interested parties, and disadvantaged/vulnerable groups

(i) affected parties, comprising households and residents of the sucos directly along each road section (including Horai-Quic, Mulo and Nunumoge along Section 1), smallholder farmers and horticulture producers, road users and roadside business owners, students and health-facility users, customary/religious leaders and custodians of sacred sites (including the horizontal cave), households on landslide-prone slopes, and communities along the Hatubuilico Junction-Ramelau Sanctuary alignment and the Mt. Ramelau Protected Area boundary;

(ii) other interested parties, comprising government counterparts (National Directorate of Pollution Control and Environmental Impact Assessment/ DNCPIA, the Ministries of Tourism, Education and Health, the National Directorate of Land, Property and Cadastral Services, and Traffic Police), civil-society organizations, academia/think tanks and media;

(iii) disadvantaged/vulnerable individuals or groups, comprising women and female-headed households, poor and near-subsistence households, children and youth, elderly persons, and persons with disabilities, all of whom require differentiated engagement measures to participate meaningfully.

Stakeholder Engagement. It will be conducted throughout the Project cycle following the SEP stage-based program:

- Project preparation: Suco-level consultation meetings, sex-disaggregated focus-group discussions, and key-informant interviews with customary/religious leaders to validate baseline data and land verification, disclose ESIA/LARAP findings, led by the PMU prior to appraisal.
- Pre-construction/mobilization: community information sessions, notice boards, and announcements through Suco chiefs on the works schedule, local recruitment process, worker Code of Conduct, and how to access the GRM, led by the Contractor and PMU.
- Construction: regular Suco-chief liaison meetings, ongoing GRM operation, and periodic community feedback check-ins to manage concerns as they arise and monitor labor-influx and SEA/SH related effects, led by the Contractor and PMU.
- Culturally sensitive locations: dedicated consultation with customary/religious leaders, relevant NGOs, and site-specific review before work reaches the horizontal cave and other sacred sites.
- Operation: a post-completion community feedback session to gather input on road safety and service-delivery outcomes and close out residual issues.

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The stakeholder engagement methods, tools and techniques are tiered accordingly: Suco-level public consultations, focus group discussions, notice boards and a multi-entry-point GRM for directly affected and vulnerable households, supplemented by radio broadcasts to reach remote and low-connectivity sucos; scheduled coordination meetings and formal written disclosure of safeguard instruments for government agencies and financiers; and proactive document disclosure, technical briefings and media engagement for academia, think tanks and press.

The tables below set out the Project's stakeholder consultation strategy by project stage and its information disclosure strategy, drawn from the SEP; the full engagement program, budget and monitoring/evaluation indicators are provided in the SEP.

Table 3. Stakeholder Consultation Strategy

Project Stage	Target Stakeholders	Topic of Consultation	Methods	Timing / Responsible
Project preparation	PAPs, suco (village)/ customary leaders, women, persons with disabilities	Project design and activities; ESIA/ESMP/ESMF preparation (gather input on impacts and mitigation, share findings, validate baseline data), land rights and valuation procedures	Suco-level consultation meetings; sex-disaggregated FGDs; key-informant interviews with customary/religious leaders; disclosure of draft findings	Prior to appraisal / PMU E&S Specialist
Pre-construction /mobilization	All corridor communities, prospective workers	Works schedule, recruitment process, worker Code of Conduct, and how to use the GRM	Community information sessions; notice boards; announcements through Suco chiefs	2 - 4 weeks before mobilization / Contractor + PMU
Construction	All corridor communities	Ongoing liaison; managing concerns as they arise; monitoring labor-influx and GBV-related effects	Regular Suco-chief liaison meetings; GRM operation; periodic community feedback check-ins	Throughout construction / Contractor Community Liaison + PMU
Cultural sites - section specific	Customary/religious leaders, pilgrimage organizers	Cultural-heritage protection and pilgrimage-season scheduling	Dedicated consultation with customary/ religious leaders; site-specific review of the cave at STA 3+560 and other sacred sites	Prior to and during Sanctuary-section works / PMU + Contractor
Operation	All corridor communities	Feedback on road-safety and service-delivery outcomes; closing out residual issues	Post-completion community feedback session	Post-construction / PMU

Information Disclosure. Project information documents (ESIA/ ESMP/ LARAP findings), works schedule, and GRM access points need to be disclosed in Tetum, in forms suited to variable literacy and limited internet access in the project area, including suco-level meetings, printed summaries at suco/municipal offices, notice boards, or broadcasts to reach remote sucos, with full technical documents also disclosed in English through the PMU website.

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Table 4. Information Disclosure Strategy

Document / Information	Disclosure Method	Language(s)	Location / Timing
Draft ESIA / ESMP / ESMF, LARAP findings	Public consultation meetings; printed summaries at suco offices	Tetum (verbal/summary), English (full document)	Prior to finalization
Final ESIA / ESMP / ESMF/ LARAP	Posted at suco council and municipal offices; PMU website	Tetum executive summary + English full document	Upon approval
Works schedule and traffic-management arrangements	Notice boards; Suco chief announcements; RTTL radio	Tetum	2 weeks before works start in each section
Worker Code of Conduct and conduct expectations	Community awareness session	Tetum	Prior to mobilization
GRM information (how to file a complaint)	Printed flyers; Suco notice boards; verbal briefing at consultation meetings; RTTL radio	Tetum	Ongoing, displayed throughout construction
Monitoring/progress reports (non-technical summary)	Shared at community liaison meetings	Tetum	Quarterly

Strategy to incorporate the views of vulnerable groups. The following groups require differentiated engagement approaches, beyond standard suco-level public meetings, to ensure their views are genuinely captured:

- Women: separate, sex-disaggregated focus group discussions facilitated by female project/PMU staff, held at times and locations that accommodate women's caregiving and livelihood schedules.
- People with disabilities: accessible meeting venues, outreach through suco social welfare contacts to identify persons with disabilities who may not attend general meetings, and alternative engagement formats (small-group or household-level) where needed.
- Elderly residents and female-headed households: household-level follow-up where general meeting attendance is not feasible.
- Children and youth: parent's consent and safeguarding, school-based child friendly sessions, youth focus groups.
- Customary and religious authorities: engaged through culturally appropriate protocols (e.g., through Rai Nain land custodians and Lia Nain for land/cultural matters, and through religious leaders for Sanctuary-related pilgrimage matters).
- Potential GBV/SEA/SH survivors: engagement on GBV-related topics follows the survivor-centered, confidential approach described in the LMP, never through open community forums.

The stakeholder engagement activities will be documented in a six-monthly report integrated with the ESCP report. Full details on stakeholder identification and analysis, engagement methods and timing, the disclosure strategy, and monitoring/reporting arrangements are provided in the Project's standalone Stakeholder Engagement Plan (SEP). The SEP is included in **Annex 1.**

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4.3. Grievance Redress Mechanisms

The GRM in this ESMP adopts PMU's existing GRM, which has been used for other TLBRP road sections of the broader Gleno-Maubisse corridor. The GRM provides an accessible, free-of-charge channel for any stakeholder, project-affected person or worker to raise concerns, complaints, or grievances related to Project activities. Grievances may be submitted through any of several channels, at the complainant's choice: suco-level complaint/suggestion boxes checked weekly, personal visit to the Section-level or PMU-level GRC, the TLBRP GRM hotline, WhatsApp, a written petition, or email (TLBRP.complaints@mpw.gov.tl). All channels accept grievances in Tetum, Portuguese, or Bahasa Indonesia. Anonymous grievances are accepted through every channel, and a complainant may bypass a channel perceived as unresponsive or biased.

There is a two-tier Grievance Redress Mechanism (GRM), established and operated by the PMU. The first tier (Section/Site level) is chaired by the Section/Site Engineer (PMU or Supervision Consultant), with the Contractor's Community Liaison focal point and Suco representatives as members; the Section-level Grievance Redress Committee (GRC) covering this Subcomponent aims to resolve grievances within 10 working days. Unresolved or serious grievances escalate to tier 2 (PMU level), chaired by the PMU Project Manager, with the Social and Environmental Safeguards/GRM Specialist, the Gender Specialist and Project GRM Focal Point, and a Technical Engineer as members, which aims to resolve within 15 working days. Every grievance is acknowledged within 3 working days of receipt and closed – resolved, withdrawn, or escalated – within 60 days. The process follows six steps: uptake; sorting and processing; acknowledgement and follow-up; verification, investigation, action, and documentation; monitoring, evaluation, and reporting; and providing feedback to the complainant, including escalation options if the complainant remains unsatisfied with the resolution.

A separate, confidential pathway applies to reports of gender-based violence, sexual exploitation and abuse, or sexual harassment (GBV/SEA/SH). Any uptake channel may receive such a report, which is handled through a survivor-centered approach: recorded without judgement, with the survivor's informed consent sought before any action, and with confidentiality protected at every stage. Cases linked to a Project worker are reported to MPW's Ethics and Integrity focal point; the completed Incident Report is sealed and sent directly to the Gender Specialist/GRM Focal Point, who, with the survivor's consent, links them to the local GBV Working Group/service providers and a Victim/Survivor Support Officer for a safety assessment and referral to health, psychosocial, legal and shelter services as needed.

Community GBV not linked to a Project worker is referred to the local GBV Sub-Cluster/Working Group for survivor support rather than to MPW. The PMU notifies the World Bank of any GBV/SEA/SH incident within 48 hours of becoming aware of it and provides an investigation report within 45 days, in accordance with the Project's ESCP.

Table 5. GRM Flow Chart – How Grievance Moves Through the System

Step	What Happens	Who is Responsible
1. Uptake	Grievance received via complaint box, personal visit, hotline, WhatsApp, petition, or email	Any GRC member, contractor/consultant liaison staff, or PMU staff

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Step	What Happens	Who is Responsible
2. Initial screening	Is the grievance GBV/SEA/SH-related?	Receiving staff, in consultation with Section GRC Chair
3a. Non-GBV/SEA/SH pathway	Logged in Section GRC logbook; sorted and categorized; forwarded to central spreadsheet	Section GRC
3b. GBV/SEA/SH pathway	Escalated within 48 hours to PMU-level GRC; Incident Report (Annex 6) completed and sealed	Section GRC Chair, Gender Specialist/GRM Focal Point
4. Acknowledgement	Complainant contacted within 3 working days with expected timeframe	GRM Focal Point
5. Verification and investigation	Facts gathered; validity assessed; resolution proposed	Section GRC or PMU GRC, as applicable
6. Resolution or escalation	Resolved within 10 days (Section level) or 15 days (PMU level); unresolved cases escalate	Section GRC / PMU GRC
7. Feedback to complainant	Complainant informed of outcome and further options if unsatisfied	GRM Focal Point
8. Closure and reporting	Case closed within 60 days; recorded in quarterly report to World Bank	GRM Focal Point / Project Manager

The GRM will be managed by the PMU together with the Supervision Consultant, the Contractor, and the local authorities, following a two-tier GRM system. Grievance Redress Committees (GRCs) will be formed in each GRM tier before civil works start there.

- **Tier 1**: Section-level GRC. The Section-level GRC is supported by the relevant suco councils and local authorities. Its members are the Section/Site Engineer (Chair); the Contractor's Community Liaison focal point; the Supervision Consultant's Social/Environmental focal point, who keeps the grievance logbook; one male and one female suco representative
- **Tier 2:** PMU-level GRC. Its members are the Project Manager, PMU Road Construction (Chair); the Social and Environmental Safeguards / GRM Specialist; the Gender Specialist and Project GRM Focal Point, who manages the GRM at PMU level and leads a dedicated pathway for GBV/SEA/SH cases; PMU Technical Engineer.

PMU, Supervision Consultant, and Contractor will refer to the Project's GRM Manual (see **Annex 2**) for full procedures, standard registration and reporting formats, contact details.

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5. Summary of E&S Impacts and Risks

The Project is expected to generate substantial long-term benefits by improving all-season access, road safety, climate resilience and connectivity between rural communities, agricultural production areas, population centers and tourism destinations. These benefits are likely to include shorter and more reliable travel, lower vehicle operating costs, improved access to markets and services, reduced disruption during heavy rainfall, and safer conditions for road users. The principal adverse impacts are expected during construction and are associated with extensive earthworks in steep terrain, vegetation and tree removal, generation and disposal of large quantities of surplus soil and rock, erosion and sediment transport, temporary disturbance of watercourses and drainage paths, dust, noise, vibration, traffic disruption, occupational and community safety risks, temporary utility interruptions, land access requirements, labor influx and worker–community interactions.

Most impacts are expected to be localized and temporary, but slope instability, poorly managed spoil, unsafe traffic, pollution incidents, uncompensated land or livelihood impacts, and damage to community water supplies could be significant if not avoided and actively managed. With final designs incorporating climate-resilient drainage and slope protection, implementation of the ESMP and CESMP, effective supervision, and timely corrective action, most residual construction impacts are expected to be moderate; impacts involving physical or economic displacement, serious incidents, sensitive habitats or cultural heritage would require specific assessment and management before works proceed.

5.1. Pre-Construction Phase

Social Disruption from Land Acquisition/Resettlement and Contractor Mobilization of Non-Local Labor. Pre-construction activities, including corridor delineation, asset inventories, valuation negotiations, and the initial mobilization of contractors, supervisory staff, and non-local workers into Horai-Quic, Mulo, and Nunumoge Sucos, will represent many communities' first direct contact with the Project and may generate anxiety and social tension if not managed transparently. Household uncertainty regarding land rights, valuation criteria, and compensation eligibility is compounded by the customary and often undocumented land-tenure arrangements described in the baseline. The incoming workers, unfamiliar with local Tara Bandu norms and Lulik-based customs, may also create friction if established protocols for introduction and consultation are not followed. Without early, structured communication and a functioning grievance mechanism, these issues could lead to work delays, distrust, and reduced cooperation during subsequent land acquisition and construction.

Land Acquisition and Impacts on Structures. Land acquisition for the confirmed right-of-way of the road project, and for ancillary sites such as borrow pits and spoil disposal areas, may cause physical displacement (loss of dwellings or structures) and economic displacement (loss of agricultural land, coffee trees, or roadside kiosks) across Horai-Quic, Mulo and Nunumoge Sucos.

The 2019 LARAP identified 75 Project-Affected Households (PAHs), including four severely affected PAHs and two requiring in-situ residential relocation. A rapid assessment of 15 PAHs in September 2026 confirmed that all affected land is privately held and that no communal land is involved. It also identified three additional cases not captured in the 2019 LARAP: two households with temporary structures on a cliffside curve and one PAH whose stone fence may be affected near a sacred tree. One previously listed PAH has already relocated voluntarily. As the 2018 census cut-off date is now

outdated, an updated census and asset inventory, with a new eligibility cut-off date consistent with ESS5, will begin in the third week of October 2026. The findings will inform the updated LARAP, which will further address impacts associated with land acquisition and structure removal.

All affected residential and commercial structures—including houses, kiosks, workshops, and fences—will be compensated at full replacement cost. Where relocation is required, support will include in-situ relocation on clan-owned land, construction assistance equivalent to 30% of the structure value, and transitional assistance. Livelihood impacts arising from the removal or relocation of kiosks and mechanical workshops are expected to be temporary. Owners will receive a temporary allowance to help them rebuild their commercial structures and restore economic activities. Public infrastructure, including four water tanks, water pipes, and electricity poles, will also require relocation or reconstruction in coordination with the agencies responsible for operating and maintaining these utilities and facilities.

Physical Cultural Resources during Site Clearance. Initial site clearance and boundary demarcation along the right-of-way and ancillary work areas create risks of disturbing the cultural heritage receptors identified as E&S sensitive receptors, including the Heluli sacred tree, the Sacred Entrance, Uma Lulik structures, sacred water sources, cemeteries, and the culturally significant horizontal cave used as a customary passage between Horai-Quic/Mulo Sucos and Maubisse. Several of these sites sit within a few meters of, or directly within, the existing road reserve, meaning even routine clearance and grading works carry a meaningful risk of physical damage or of disturbing previously unrecorded ancestral or archaeological material.

Given the significance of the Lulik-based belief system described in the baseline, any unmanaged disturbance could also generate significant community grievance independent of the physical damage itself. In addition, the horizontal cave presents a distinct and elevated risk profile beyond the standard chance-find pathway applicable to the other five receptors, as the baseline indicates it may connect to a regional karst system, combining an unresolved cultural-heritage sensitivity with a potential geotechnical hazard to the road itself in landslide-prone terrain.

Disproportionate impacts on marginalized and vulnerable groups. Land acquisition and preliminary pre-construction disruptions do not affect all community members equally. The baseline above identifies vulnerable households at the suco level, including women-headed households, elderly residents, and persons with disabilities. These groups, together with landless or informal resource users, face a heightened risk of exclusion from compensation consultations conducted in standard formats, loss of non-formalized or communally-held assets that fall outside conventional entitlement frameworks, and disproportionate hardship during any temporary relocation or livelihood disruption. Women, who play a central role in household agriculture and small-scale trade along the corridor, may also be underrepresented in land negotiations traditionally led by male household heads or customary leaders.

Baseline verification and design risk reduction. Incomplete baseline information or insufficient design verification could lead to poorly informed siting and design decisions, resulting in unstable spoil disposal, impacts on community water sources, unacceptable noise or air-quality effects at sensitive receptors, avoidable biodiversity loss, poorly located temporary construction facilities, or damage to cultural heritage values.

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Ancillary Sites, Materials, and Supply-Chain Controls. The selection and use of ancillary sites, quarries, borrow areas, water sources, and disposal sites may create risks related to land access, slope stability, drainage, biodiversity, cultural heritage, community safety, water demand, and pollution. Inadequate capacity planning, unapproved material sourcing, or improper disposal could also increase haul-route risks, resource consumption, and rehabilitation liabilities.

Damage to Existing Utilities and Infrastructure. Road widening, excavation, drainage works, slope cutting, vegetation clearance, and construction access may damage or require the relocation of existing electricity and water-supply infrastructure, resulting in service interruptions. Disruptions could affect households, community facilities, and other users, while accidental strikes on buried or roadside utilities could create safety hazards, delays, and additional repair costs.

Contractor Mobilization. Early contractor mobilization may create traffic, worker–community interaction, labor, waste, water-use and safety risks before full construction begins.

5.2. Construction Phase

Vegetation Removal and Modified Habitat Disturbance. Clearing, grubbing, road widening, slope trimming, drainage installation and temporary access will remove or damage roadside vegetation and disturb fauna using modified habitat along the corridor. The bill of quantities indicates approximately 18.5 ha of clearing and grubbing and removal of 835 small and 30 large trees. Direct effects may include loss of tree and ground cover, fragmentation of remaining vegetation, disturbance or displacement of fauna, accidental injury to fauna, loss of shade and productive trees, and reduced soil protection on steep slopes. Indirect effects may arise from improved access, fire, collection of timber, introduction of invasive plants, and transfer of weed seed in soil, machinery, or revegetation materials.

Slope Instability, Landslide, and Erosion. Excavation, over-steepened cuts, placement of fill, vibration, vegetation removal, concentrated runoff and inadequate temporary support may destabilize already steep or weathered slopes. Failure could occur as shallow erosion, rockfall, debris movement or larger landslides, with consequences including worker or public injury, burial or damage of property and farmland, road closure, blocked drainage, sediment discharge and isolation of communities. Risk is highest at known unstable sections, deep cuts, high fills, retaining structures, spoil areas and outlets, and increases during prolonged or intense rainfall.

Surplus Material and Spoil Disposal. The design quantities identify approximately 236,100 m^3 of surplus common excavation, 123,600 m^3 of surplus hard rock and 239,400 m^3 of surplus soft rock. Total rock needed for stone masonry, gabion, riprap and concrete as per estimated quantity in BOQ is 112,855 m^3. Surplus from common excavation and soft rock excavation with a total of 475,500 m^3 may require disposal after reuse. Uncontrolled placement may overload slopes, increase erosion and sedimentation, bury productive land or vegetation, and increase downstream landslide risk.

***Surface-Water Quality, Hydrology and Community Water Supply*.** Earthworks, stream crossings, culvert replacement, bridge works, concrete handling, spoil placement and fuel use may increase turbidity, release pollutants, alter flow paths or interrupt access to springs, streams, pipes and collection points used by communities. Steep terrain and intense rainfall can rapidly transport sediment and contaminants downstream. Poorly located culvert outlets may also cause scour, erosion, or drying of an existing flow path.

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Dust, Combustion Emissions and Nuisance. Excavation, grading, exposed soil, vehicle movements, unloading, and diesel-powered plant will generate dust and combustion emissions. Nuisance may include reduced visibility, soiling of houses and crops, odor and smoke, while fine particulate matter and exhaust may aggravate respiratory conditions. Houses, schools, health clinic, markets, and outdoor workers are particularly sensitive, especially during dry and windy weather.

Haulage, Unsealed Surfaces, Stockpiles, Crushing and Batching Plants: Community Health and Safety. Repeated heavy-vehicle movements and operation of stockpiles, crushers and batching plants may expose nearby communities to concentrated dust, noise, vibration, vehicle conflict, falling material, moving machinery, reduced visibility and unauthorized access. Risks are greater where facilities or haul routes are close to homes, schools, markets, health facilities, pedestrian routes or community water sources, and where unsealed roads are narrow or steep.

Noise and Vibration. Excavators, breakers, compactors, crushers, batching equipment, generators, trucks, and other construction activities may increase noise and ground vibration. Potential effects include disruption to sleep, teaching, communication, and business activities, as well as stress to livestock. The indicative daytime baseline of 52–57 dB(A) is already close to or above relevant daytime values for some sensitive land uses, leaving limited capacity for additional noise.

Waste, Hazardous Materials and Spills. Construction will generate removed asphalt, concrete and demolition debris, scrap, packaging, vegetation, domestic waste, sewage, used oil, oily rags, filters, batteries, chemicals and concrete washout. Poor storage, handling or disposal may contaminate soil and water, attract pests, create fire or injury risks, block drainage and expose workers or the public to hazardous substances. A significant fuel, bitumen or chemical release could have severe consequences at water crossings or near community sources.

Borrow Areas, Quarries and Temporary Facilities. Borrow pits, quarries, crushers, batching plants, camps, laydown areas, workshops, stockpiles and access tracks may extend the disturbance footprint beyond the road reserve and create land, biodiversity, erosion, drainage, pollution, traffic, and community-safety impacts. The identified potential aggregate source at KM 1+680 has an estimated available quantity of 22,500 m^3, below the approximately 33,950 m^3 combined sub-base and base-course demand, so supplementary sources will be required.

Construction Traffic and Community Road Safety. Heavy haulage, slow plant, temporary diversions and active work zones on narrow, steep and winding roads will increase collision risk, delay emergency and public transport, damage local access routes and create conflict with pedestrians, schoolchildren, roadside vendors, livestock and motorcycles. Reversing vehicles, blind bends, reduced visibility from dust, unstable road edges and movement through settlements or markets present risks.

Occupational Health and Safety. Workers may be exposed to live traffic, mobile plant, unstable slopes, rockfall, excavations, lifting operations, work at height, hot work, bitumen and cement, silica-containing dust, noise, vibration, electricity, manual handling, heat, and severe weather. Contractors, subcontractors, visitors, and informal workers may have different levels of competence and vulnerability. Potential outcomes include serious injury, fatality, occupational illness, gender-based violence, and delayed emergency response in remote work areas.

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Labor Influx Impacts: Utilities, Conflict, Child Labor, and Community Health and Safety. An influx of non-local workers into the rural Sucos of Horai-Quic, Mulo, and Nunumoge could strain the limited potable-water and medical supplies documented in the baseline, increase local food and rental prices, create friction with host communities, and contribute to the transmission of communicable diseases. Given the corridor's small resident population and limited services—including a single health facility still under construction nearby—even a modest labor influx could be significant relative to existing capacity. The arrival of construction crews and associated informal market activity, such as roadside vending and petty errands, may also create opportunities that draw school-age children away from the two corridor schools, whether through informal hiring by subcontractors or household decisions to prioritize short-term income over school attendance.

Gender Based Violence (GBV) - Sexual Exploitation, Abuse, and Harassment (SEA/SH). Influx of male-dominated, cash-earning non-local labor into low-income, rural communities of the kind documented in the corridor's baseline significantly elevates the risk of GBV and Sexual Exploitation and Abuse (SEA), Sexual Harassment (SH), and intimate partner violence. Women's comparatively limited economic independence and decision-making power in the corridor communities may increase vulnerability to exploitation and reduce willingness to report incidents through informal channels.

Livelihoods and Access Restriction. Construction activity may temporarily restrict access to basic services, gardens, agricultural plots, and roadside trading locations beyond the land-acquisition footprint addressed above, particularly where works require full or partial road closure or diversion. Because the corridor is the primary access route for all affected Sucos, including to primary schools, the periodic market, and the health facility under construction in Nunumoge Suco, even short-duration closures can have an outsized effect on households and services with no practical alternative route. Coffee cultivation, the corridor's dominant livelihood activity, is also highly seasonal, making the timing of disruptive works as important as their duration.

Local Economic Development and Employment Opportunities. The construction of the project road will generate demand for unskilled and semi-skilled labor, local materials and services (accommodation, food, transportation), and opportunities to channel benefits to vulnerable and female-headed households identified in the baseline data. The remaining risk is that these benefits may not be distributed equitably, or will accrue disproportionately to better-connected households, larger landowners, or residents of settlements closer to the more accessible end of the Maubisse corridor, at the expense of remote villages and women, who have significantly lower participation rates in the formal wage economy than men.

Impacts on Cultural Heritage/ Sacred Sites**.** Excavation and heavy machinery movements along the corridor can accidentally damage the cultural heritage receptors (sacred trees, Uma Lulik, sacred water, cemeteries and the horizontal cave), as well as community water distribution networks and drainage structures running parallel to the roadway. Because several of these assets sit within or immediately adjacent to the existing road reserve, standard construction activities carry an inherent risk of contact even where damage is unintended. Heavy machinery operation, vibration, or excavation near the horizontal cave carries additional risk beyond accidental contact. Given the cave's possible connectivity to a regional karst system in landslide-prone terrain, uncontrolled nearby construction activity could aggravate an unmapped geotechnical hazard and damage the cultural asset itself.

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5.3. Post-Construction Phase

Decommissioning and closure of temporary construction facilities—including worker camps, batching and crushing plants, storage areas, workshops, borrow areas, quarries, spoil sites and access tracks—may create impacts if structures, equipment, wastes, hazardous materials or contaminated soil are left in place. In the steep terrain and high-rainfall conditions, exposed or poorly graded surfaces and blocked or altered drainage can accelerate runoff, erosion, slope instability and sediment transport to streams, springs, agricultural land and downstream communities. Unsecured sites may also present safety hazards, restrict customary land use and generate disputes where landowner commitments, permits or grievances remain unresolved. Conversely, orderly closure, restoration of drainage, stabilization of slopes and successful revegetation will reduce these pathways and support the safe return of land to agreed post-construction uses.

Air Quality. During operation, road traffic will emit nitrogen oxides (NOx), hydrocarbons, carbon monoxide, sulfur dioxide (SO_2) and particulate matter. Dust and fumes may also arise from vehicle movements and nearby domestic fuel burning. However, the improved asphalt surface is expected to reduce road dust compared with existing conditions.

Water Quality. During periods of significant rainfall, improved drainage may mobilize sediment from the road and adjacent land. Accidental spills during operation could also affect receiving waters. In dry periods, accumulated vegetation and other dry matter could obstruct drains and increase the likelihood of polluted runoff when rainfall resumes.

Access, Flora and Fauna. Improved road conditions could increase movement through the project area and, in principle, facilitate access to timber, flora, or fauna. However, the project rehabilitates an existing road and does not create new access into previously inaccessible forest areas. Commercial logging access is separately licensed and supported by logging-company roads, while limited selective logging for traditional or cultural purposes is already permitted.

Operational Road Safety. Although the upgraded road should improve access, pavement condition and resilience, smoother surfaces may increase vehicle speeds and traffic volumes. This can raise the severity of crashes involving pedestrians, motorcycles, livestock and roadside activity, particularly in settlements and near schools, market, junctions and public transport stopping points. Better access may also encourage informal stopping or parking, roadside trading, encroachment into drainage, and land conversion.

Improved Access and Connectivity for Vulnerable Groups. The corridor upgrade is expected to improve safe mobility for women and girls, support continued attendance at the two schools documented in the project corridor, and improve access to health services once the Nunumoge health facility becomes operational. The residual risk is that the design may not extend these benefits to the most vulnerable—for example, if pedestrian infrastructure near schools and the market is absent, lighting is inadequate, or accessibility features for persons with disabilities and older people are not provided.

Employment, Business, and Tourism Opportunities. Once operational, the upgraded corridor is expected to deliver sustained benefits, including shorter travel times and lower transport costs, expanded produce trading, growth in community-based tourism along the route toward Maubisse and

Hatubuilico Junction Road, and more reliable operations for small enterprises. The residual risk is that these benefits may become concentrated among better-connected households and roadside businesses rather than extending to more remote Aldeias along the corridor.

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6. Environmental and Social Mitigation and Monitoring

6.1. Impact Mitigation Measures and Monitoring Plan

A comprehensive assessment of the environmental and social risks and impacts associated with the TLBRP2 – 12-km Aituto – Hatubuilico Junction Road is presented in the updated ESIA (2016). It also identifies measures to avoid, minimize, mitigate, or otherwise manage these risks and impacts. The mitigation and monitoring plans set out in this updated ESMP, and therefore, should therefore be read together with the updated ESIA to ensure a complete understanding of the potential risks and impacts and the measures established to address them.

Annex 2 sets out the recommended mitigation measures for the aforementioned road project and activities during the pre-construction, construction, and post-construction phases. For each phase, the tables specify the required mitigation measures, associated cost allocation, responsible entity, and applicable implementation stage.

Annex 3 sets out monitoring measures. The monitoring tables are organized into four sections: (i) a pre-construction phase checklist; (ii) a one-off pre-construction checklist; (iii) a weekly construction-phase checklist; and (iv) a post-construction supervision checklist for the investments.

Annex 4 provides a sample template for the Supervision Consultant's (SC) weekly monitoring of the Contractor. The Supervision Consultant should use this template, or an equivalent format, to fulfil its weekly monitoring obligations. In addition to specifying the required measures, the ESMP defines the arrangements for implementation, including environmental and social roles and responsibilities, institutional capacity development and training requirements, and the corresponding indicative budget. It also provides instructions for incorporating applicable environmental and social requirements into bidding and contract documents.

The MPW PMU has overall responsibility for environmental and social supervision during project design and implementation. It is also responsible for incorporating operational-phase supervision requirements into its annual work plans and budgets.

6.2. Supplementary Management Processes

6.2.1. Labor Management

Labor management for the Project is governed by the Labor Management Procedures (LMP), prepared consistently with ESS2 and Timor-Leste labor legislation, which this ESMP incorporates by reference and to which the PMU and project workers are directed for full detail. The Project workforce comprises three categories consistent with ESS2: direct workers (PMU staff and consultants engaged directly by MPW), contracted workers (Contractor, subcontractor and Project Supervision Consultant personnel, expected to form the largest workforce group), and primary supply workers (employed by suppliers of materials and equipment). Labor demand peaks during the construction phase, with a mixed workforce of locally recruited unskilled/semi-skilled labor from neighboring sucos alongside non-local skilled tradespeople, supervisory staff and, for specialized tasks, possible foreign technical personnel; local hiring is to be prioritized and

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coordinated through Suco Chiefs, subject to minimum qualification requirements, with women actively encouraged to fill suitable roles under non-discriminatory recruitment criteria.

Key labor risks identified in the LMP include: physical/OHS risk from earthworks and plant operation on steep, landslide-prone terrain; the largely informal, casual and day-rate nature of much local labor, which risks workers being engaged without documented terms or social-security registration; labor-influx risks from mobilizing non-local labor into a small rural corridor, including pressure on local services, community-worker tension, and elevated risk of GBV/SEA/SH; a secondary risk of child labor or school disruption linked to increased local cash income (noting the national minimum age for hazardous work of 17 years); occupational-health exposure (dust, noise) at quarrying, crushing and batching sites; and the risk of inconsistent LMP/ESS2 compliance across a multi-site rural corridor given limited local Contractor experience in managing a compliant LMP. These risks and their detailed mitigation measures are set out in the LMP.

Core policies applied throughout the Project life cycle, detailed in the LMP, include: non-discrimination and equal opportunity in recruitment and employment, including equal pay for equal work; prohibition of forced, bonded or trafficked labor and of child labor below the national minimum age; occupational health and safety management consistent with the WBG EHS Guidelines (PPE, first aid, sanitation and welfare facilities, mandatory induction and toolbox-talk training, and incident recording/reporting within 24 hours for lost-time injuries and fatalities); and a dedicated workers' Grievance Redress Mechanism.

A separate workers' GRM, established under the LMP prior to mobilization, addresses workplace concerns raised by Contractor and Consultant personnel, operating independently, without retribution, and in a language workers understand. The PMU Project Manager monitors GRM performance (registration books/spreadsheet checked at least every two months, with periodic verification calls to complainants) and produce quarterly report disaggregated by sex, including grievance categories, volumes by section, and resolution status.

Implementation responsibility is shared across three levels, as set out in the LMP: the PMU (through its Environmental and Social Specialist) holds overall oversight, audits Contractor labor-management practice, and resolves escalated labor disputes; the Supervision Consultant monitors day-to-day Contractor compliance with the LMP, OHS and labor standards, verifies worker age and contract documentation before site access, and retains authority to issue stop-work orders for critical OHS hazards or indications of child labor; and the Contractor and Primary Supplier implement a site-specific Contractor LMP (C-LMP) and Contractor OHS Plan as part of the CESMP, appoint a qualified HSE Manager, and enforce the worker Code of Conduct, including zero-tolerance sanctions for SEA/SH.

Full requirements, the worker-category and risk/mitigation tables, and the standalone workers' GRM procedures are set out in the Project's LMP (see **Annex 3**), which this ESMP defers to for detail and which the Contractor's CESMP must give effect to through the site-specific C-LMP.

6.2.2 Land Tenure, Access and Acquisition

Land in the project corridor is held predominantly under customary tenure, recognized informally alongside formal title, and land governance is exercised through Suco Councils. The Project's detailed design retains the existing road alignment and reserve wherever feasible, minimizing new land take,

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but upgrading to national road standards (wider carriageway, shoulders and drainage) will still require land acquisition and affect structures, crops/trees and livelihoods along the confirmed right-of-way and at ancillary sites (borrow pits, spoil disposal areas).

Based on the ESIA, land acquisition for the confirmed right-of-way of the corridor, and for ancillary sites such as borrow pits and spoil disposal areas, may cause physical displacement (loss of dwellings or structures) and economic displacement (loss of agricultural land, coffee trees, or roadside kiosks) across Horai-Quic, Mulo and Nunumoge Sucos. The 2019 LARAP identified 75 Project Affected Households (PAHs), including four severely impacted PAHs and two requiring in-situ residential relocation. A rapid assessment of 15 PAHs in September 2026 confirmed that all affected land is privately held and that no land is communal. It also identified three further cases not captured in the 2019 LARAP, two households with temporary structures on a cliffside curve, one PAH whose stone fence may be affected near a sacred tree, while one previously listed PAH has already relocated voluntarily.

These impacts will be managed through a standalone updated Land Acquisition and Resettlement Action Plan (LARAP), which serves as the Project's primary instrument for managing land-related environmental and social risk and which this ESMP defers to for detail. The updated LARAP will include final figures of the impacted land, which will be confirmed through the detailed updated census and asset inventory from the third week of October 2026. The updated LARAP applies an entitlement matrix recognizing customary and use rights as well as formal title, consistent with ESS5 and follows the mitigation hierarchy of minimizing land take through design adjustment before compensating unavoidable losses at full replacement cost. The document shall be disclosed to affected communities through Suco Councils and Rai Nain prior to any land acquisition, in Tetum and with alternatives for low-literacy-appropriate formats and will provide livelihood restoration support to affected roadside vendors, small businesses and agricultural/tree-crop cultivators prior to site clearance. The updated LARAP (see **Annex 4**) shall be implemented alongside the Stakeholder Engagement Plan and the GRM, which are fully established and publicized before land acquisition activities commence.

6.2.3. Occupational Health and Safety

During construction and operation health and safety is to be managed through a Site Specific OHS Plan and application of: WB ESS 2 – Labor and Working Conditions; WBG Environmental, Health and Safety Guidelines (EHSG); and TLBRP2 Labor Management Procedure (LMP)

The Contractor will develop a project-specific OHS Management Plan for the works to establish and maintain a safe working environment, including that workplaces, machinery, equipment and processes under their control are safe and without risk to health, including by use of appropriate measures relating to chemical, physical and biological substances and agents. The Contractor will proactively ensure that all workers are trained in what the OHS risks are and how to manage them. The OHS Management Plan will include how the Contractor will train the workers on OHS requirements.

The LMP contains the requirement for a Workers GRM. The Contractor will implement this GRM to ensure that a workers GRM is in place, easily accessible and well-advertised to enable the workers to report situations they believe are not safe or healthy and to remove themselves from a work situation which they have reasonable justification to believe presents an imminent and serious danger to their

life or health. The Contractor will provide workers with facilities including access to canteen or catering, bathrooms (and shower blocks for any workers camps) and appropriate rest areas. For any workers accommodation, a policy will be put in place and implemented on the management quality of accommodation to protect and promote the health, safety and well-being of the project workers, and to provide access to or provision of services that accommodate their physical, social and cultural needs.

The Contractor shall appoint a certified OHS Officer at the Site, with qualifications acceptable to the Supervision Engineer, responsible for maintaining safety and protection against accidents. This person shall have the authority to issue instructions and take protective measures to prevent accidents. Throughout the execution of the Works, the Contractor shall provide whatever is required by this person to exercise this responsibility and authority.

Civil works shall not commence until the Supervision Engineer has approved the OHS Management Plan, the Safety Officer is mobilized and on site, and staff have undergone induction training.

The following are the contractual requirements for OHS as stipulated in the bidding documents in that Funding for Occupational Health and Safety (OHS) training and activities is provided in the bill-of-quantity as a provisional sum. The Contractor's costs shall be financed from this on proof of record (e.g. time sheets, material invoices etc.) for the following:

- Provision of Safety Officer when acting in the role of Safety Officer
- Personal Protective Equipment (PPE) for all workers on the site, and visitors as appropriate
- Safety signage, safety literature, condoms, voluntary counselling and testing, etc.
- Alcohol testing of staff to enforce a zero-alcohol tolerance policy
- Contractor's SEA/SH Action Plan and signing the Code of Conduct, including Coordination and engagement with existing SEA/SH service providers for survivor referrals
- Expenses related to OHS training (including SEA/SH training, HIV-STI awareness training)
- Project workers GRM, including SEA/SH integrated GRM that is handled confidentially
- Labor costs for attending: (i) dedicated safety training such as working at heights, confined space training, first aid training etc.; (ii)) gender-based violence (GBV)/SEA/SH training. The contractor shall make staff available for initial training of 1.5 days, and a total of at least 0.5 days per month for other such formal trainings.

The Contractor shall at all times take all reasonable precautions to maintain the health and safety of the Contractor's Personnel. In collaboration with local health authorities, the Contractor shall ensure that first aid facilities and sick bays are available at all times at the Site, including having a site vehicle available at all times that can be used to transport Contractor's and Employer's Personnel to medical facilities. The Contractor shall ensure that suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics.

The Contractor shall send, to the Supervision Engineer, details of any accident or incident within 24hours. In addition, within 5 working days of the end of the calendar month the Contractor will be required to report to the Supervision Consultant on their performance with the following OHS indicators:

- Number of fatal injuries (resulting is loss of life of someone associated with the project or the public)

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- Number of notifiable injuries (an incident which requires notification of a statutory authority under health and safety legislation or the contractor's health and safety management system)
- Number of lost time injuries (an injury or illness certified by a medical practitioner that results in absence of work for at least one scheduled day or shift, following the day or shift when the accident occurred)
- Number of medical treatment injuries (the management and care of a patient to effect medical treatment or combat disease and disorder excluding: (i) visits solely for the purposes of observation or counseling; (ii) diagnostic procedures (e.g. x-rays, blood tests); or, (iii) first aid treatments as described below)
- Number of first aid injuries (minor treatments administered by a nurse or a trained first aid attendant)
- Number of recordable strikes of services (contact with an above ground or below ground service resulting in damage or potential damage to the service)
- Lost Time Injury Frequency Rate (the number of allowed lost time injury and illness claims per 100 full-time equivalent workers for the injury year specified)
- Total Recorded Frequency Rate (the number of recordable injuries [recordable/lost time/fatal] per 100 full-time equivalent workers for the injury year specified)

The monthly reports shall include, among others:

- Number of alcohol tests
- Proportion of positive alcohol tests
- Number of site health and safety audits conducted by contractor
- Number of safety briefings
- Number of near misses
- Number of traffic management inspections
- Number of sub-contractor reviews
- Number of stop work actions
- Number of positive reinforcements
- For each fatality, injury or near miss incident, the Contractor shall provide a corrective action report within the monthly report detailing steps taken to ensure risks of a repeat incident are minimized.

The PMU will issue instructions to the SC to instruct the Contractor amend all work practices and procedures or implement such other safety or preventative measures as may be deemed necessary to help ensure there are no repeat or similar accidents.

6.2.4. Sexual Exploitation, Abuse, and Harassment and HIV Prevention

Gender-based violence in Timor-Leste is widespread and one of the critical social issues. Baseline data from ESIA[2] record a significant percentage of women and men who experience sexual violence in Timor Leste, and GBV is the largest category of crime reported to police, although most cases are dealt with informally and never reported.

[2] https://asiafoundation.org/wp-content/uploads/2017/06/nabilan-main-report-screen-2017_06_08.pdf

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Project activities can exacerbate this baseline risk in several ways, such as through labor influx and the presence of a non-local, partly male construction workforce, which raises the risk of sexual exploitation, abuse and harassment (SEA/SH) and of transactional sex and early/forced marriage. Land acquisition and compensation processes can leave women disproportionately vulnerable where land titling or compensation arrangements exclude them and increased cash income and population mobility around work sites raise a secondary risk of child labor and of communicable-disease transmission, including HIV/STIs.

These risks are managed through the Project's SEA/SH Risk Prevention and Management Action Plan (SEA/SH Action Plan), summarized in Annex 10 and incorporated by reference into this ESMP and the CESMP. The SEA/SH Action Plan follows a survivor-centered approach built on the principles of emphasizing prevention, building on existing local knowledge and services, being evidence-based and adaptable, and enabling continuous monitoring and learning. Its key measures include:

- Integrating SEA/SH requirements into procurement, bidding and CESMP approval (so that civil works cannot commence until the Contractor's SEA/SH Action Plan and Code of Conduct are approved)
- Mandatory SEA/SH training and capacity building for PMU, Supervision Consultant and Contractor personnel
- Community awareness-raising on GBV/SEA/SH risks, reporting channels and available services, conducted alongside the Stakeholder Engagement Plan
- Signed Codes of Conduct for all project related personnel, with sanctions ranging from formal warning to termination and referral to the police
- A SEA/SH integrated GRM that is handled confidentially and referred to SEA/SH service providers
- Coordination and engagement with existing SEA/SH service providers for survivor referrals
- Conduct regular monitoring and reporting against indicators such as the number and percentage of workers who have signed and been trained on the Code of Conduct and the number of SEA/SH cases referred to service providers and addressed.

HIV/STI prevention is addressed within the same worker-community interface. Awareness and prevention messaging on HIV/AIDS and other STIs is included in worker induction and in community awareness sessions, coordinated with the SEA/SH Action Plan's messaging on labor-influx risk, and supported by referral pathways to local health posts. Where feasible, conduct pre-deployment health screening for workers, consistent with the LMP's occupational-health provisions. The PMU Gender Specialist/GRM Focal Point, the Social and Environmental Safeguards Specialist, the Supervision Consultant, and the Contractor share responsibility for HIV/GBV risk management and for including it in the CESMP.

6.2.5. Cultural Heritage Management

The ESIA identifies several physical cultural resources and sacred sites within the Project's area of influence, most notably the Horizontal Cave (historically used as a secret passage to Maubisse, located within the existing road right-of-way and considered a high-sensitivity receptor), the Heluli ancestral site, and dispersed Uma Lulik (sacred houses), and sacred water along the corridor.

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These resources are managed through a dedicated Cultural Heritage Management Plan (CHMP), consistent with ESS8, applying the mitigation hierarchy: avoidance through design buffers and alignment adjustment wherever feasible; pre-clearance walkovers and consultation with community/customary elders; marking, fencing and access control around identified sites before works reach them; and a joint investigation, coordinated with Rai Nain custodians and the responsible cultural-heritage authority, prior to finalizing the detailed design at the horizontal-cave area. An outline of the Cultural Heritage Management Plan (CHMP), and the standalone Chance Find Procedure (CFP) that applies in the event of an unanticipated discovery during earthworks, are set out in full in **Annex 9.**

Responsibility for cultural-heritage management is shared between the PMU (with oversight of the CHMP and coordination with the cultural-heritage authority), the Contractor (day-to-day implementation of site protection measures and the CFP, and the Supervision Consultant (field oversight and verification), with escalation to the responsible Ministry for any significant find.

6.2.6. Selection Criteria for Spoil Disposal Site

The selection of a suitable spoil disposal site is essential to ensure that surplus excavated material is managed safely, responsibly, and in compliance with environmental and social requirements. The assessment should consider engineering stability, drainage and water protection, existing land use, community and cultural sensitivities, accessibility, rehabilitation potential, and the necessary approvals from relevant authorities and landowners. Annex 10 provides site selection criteria and compliance checklists to be used by Supervision Consultant and Contractor.

Key Site Selection Criteria:

- Get written approval from the landowner, local authority, Supervision Consultant (SC), and Project Management Unit (PMU
- Choose areas with acceptable ecological and engineering stability, prioritizing disused quarries and abandoned borrow pits
- Locate the disposal site at least 20 meters away from surface water courses to prevent contamination
- Avoid productive farming areas, local coffee plantations, religious sites, and schools

Legal and Institutional Approvals:

- Proposed sites must be detailed within the project's Construction Environmental and Social Management Plan (CESMP) and submitted to the National Agency for Environmental Licensing (ANLA) to secure the necessary environmental permits.
- The contractor cannot unilaterally dump waste. Spoil sites must be formally approved by the Project Management Unit (PMU), Project Implementation and Supervision Consultant (PISC), local Suco (village) leaders, and private landowners. Signed waivers or land-use agreements are mandatory before operations begin.

Topography and Engineering Safety:

- In mountainous terrain, prioritize lower-slope land (<15° to 20°) to facilitate the creation of stable landforms and mitigate the risk of mass wasting or gravity-driven slope failure.

- Actively target disused quarries, abandoned borrow pits, or heavily degraded grasslands. Avoid placing heavy spoil on top of existing geologically unstable zones where it could trigger deep-seated landslides.
- Rehabilitation Potential: Ensure the site can safely accommodate the material in 15 cm compacted layers. It must allow for the application of topsoil, structural drainage controls, and immediate revegetation to prevent severe wet-season erosion.

Environmental and Hydrological Protections:

- **Water Body Buffers:** Spoil sites must be located **at least 20 meters away from surface watercourses**, rivers, and community water sources to prevent sediment contamination and high turbidity during Timor-Leste's intense rainy seasons.
- **Biodiversity Conservation:** Avoid clearing high-value forests or natural habitats. Limit land clearance by prioritizing low-value or already eroded terrain. [2, 10, 11, 12, 13]

Social and Cultural Protections:

- **Agricultural Land and Livelihoods:** The site must avoid productive agricultural land, especially that vital to local livelihoods and highly sensitive to unmanaged runoff
- **Cultural and Sacred Sites:** Strictly avoid any sacred areas (lulik sites), cemeteries, churches, schools, and other historical or customary assets; confirm their absence through a joint walkover with Suco/Aldeia customary authorities before a site is finalized.
- **Land Tenure and Consent:** Confirm land tenure status, including customary and use rights recognized informally alongside formal title, and obtain written consent from the landowner(s) and endorsement from the Suco Council before the site is used
- **Community Consultation:** Disclose the proposed site and its intended use to potentially affected households and the wider community through Suco-level consultation, and record and address any concerns raised through the Project GRM prior to finalizing site selection.
- **Access and Equitable Use:** Ensure the disposal site and associated haul routes do not block or degrade footpaths, water points, or garden access relied upon by communities, especially women, children, the elderly, or persons with disabilities.
- **Chance Finds:** Where a spoil disposal site is located in an area of unconfirmed cultural sensitivity, apply the Project's Chance Find Procedure if previously unknown cultural material, human remains, or sacred objects are encountered during site preparation or filling.

Table 6. Summary Checklist for Site Suitability Assessment

Criteria	Highly Suitable	Unsuitable / Restricted
Slope / Terrain	Flat to gentle slopes (<15°)	Steep slopes (>20°) or active landslide zones
Existing Land Use	Disused quarries, degraded/barren land	Active coffee plantations, fertile agricultural land
Hydrology	>20m away from rivers/streams	Near water channels, springs, or floodplains
Cultural Value	Clear of community assets	Sacred sites, schools, churches, or residential zones

Criteria	Highly Suitable	Unsuitable / Restricted
Land Tenure / Consent	Formal title or documented customary/use rights; written landowner consent and Suco Council endorsement obtained	Disputed or unverified tenure; no written consent or Suco Council endorsement
Community Consultation	Suco-level consultation completed; no unresolved concerns	No consultation held, or unresolved community objections/GRM cases
Access / Equitable Use	Does not obstruct footpaths, water points or garden access used by the community	Blocks or degrades access relied upon by communities, especially women, children, the elderly or persons with disabilities
Approvals Required	ANLA, PMU, PISC, Suco Chiefs, and Owner	Handled without community/lender consultation

6.3. Contractor's ESMP (CESMP)

The Contractor is required to prepare a Contractor's Environmental and Social Management Plan (CESMP) for the Works, which shall be in line with this ESMP and the technical specifications of the bid documents. The Contractor **shall not commence any Permanent Works** under the Contract prior to receipt in writing from the Supervision Consultant (SC) that the CESMP has been reviewed and approved by the PMU. The approved CESMP shall become an integral part of the Contract documentation.

The CESMP will be the Contractors guiding document for the implementation of this ESMP. During works the CESMP will be reviewed and approved based on the requirements of the ESMP and will be their management plan for the practical implementation of these requirements. The CESMP will contain the contractor's methodology and plan for adhering to their safeguard requirements. Additionally, the CESMP will detail how the Contractor plans to resource their team with personnel and financial resources as per the Contract. The Contractor will include sufficient provision in their Bill of Quantities (BOQ) to ensure that the CESMP can be developed, implemented, and monitored by their E&S safeguards/risk management specialist. As this role will be key personnel within the bid document, the Contractor is obliged to ensure that their BOQ item is sufficient for this person to carry out their duties as required in this ESMP and the contract.

The CESMP and associated sub management plans will be developed, approved, and disclosed before the commencement of civil works. The bid documents will require that the CESMP be developed by the Contractors E&S safeguards/ risk management specialist and after internal review and approval, it will be subject to approval from the Supervision Consultant who will coordinate a review with the PMU.

6.3.1 CESMP Content

The CESMP should include the items listed below to be consistent with, and responsive to, the ESMP and bid document, the conditions of permits and approvals from the relevant ministry departments. The CESMP must cover all activities within the project's area of influence. The area of influence

includes the active worksites, laydown areas, construction camps, haul routes, production facilities (concrete, asphalt etc.) and materials sources.

The CESMP should include the items below and be project- and site specific:

(i) **PROJECT DESCRIPTION:** The CESMP should provide a summary of the project as this provides context for the plan. This will also include a description of the works, work methods and details of temporary facilities at the contractor's camp and laydown area as well as activities specific to these areas. A summary of the environment and social at these locations should be summarized from the ESMP included as this helps provide the environmental and social context to which the CESMP applies. A schedule of intended commencement and completion dates should be provided.

(ii) **OBJECTIVES:** The environmental and social outcomes of the CESMP should be defined based on project- and site-specific conditions.

(iii) **ROLES AND RESPONSIBILITIES:** The CESMP should define the roles and responsibilities of each relevant position responsible for ESMP implementation, including the responsibilities of subcontractors. The names of the personnel responsible do not need to be included. Identification of the position titles, roles and responsibilities is sufficient.

(iv) **REPORTING:** The description of reporting requirements should include a list of required reports and environmental and OHS monitoring, environmental and social related incidents, non-compliance, and corrective action. and a description of the standard report content.

(v) **CAPACITY BUILDING INCLUDING TRAINING:** All people involved with the project should receive relevant environmental and social training to ensure they understand their responsibilities when implementing the CESMP. People to be trained include those at the site/s of all project activities and operations, including contractors, subcontractors and visitors. The training should be tailored to the role of the individual in the project. The CESMP will include a list of the training needed and the plan for undertaking this training. The CESMP will also identify the resources to conduct this training (internal/external).

(vi) **EMERGENCY CONTACTS AND PROCEDURES:** The CESMP should identify the key emergency contacts responsible for managing environmental emergencies associated with the project and their contact details. These personnel should have the power to stop and direct works so that they can manage emergencies effectively. In addition, the plan should establish procedures for managing environmental emergencies and ensure that those procedures are implemented and maintained.

(vii) **POTENTIAL ENVIRONMENTAL AND SOCIAL IMPACTS:** The potential impacts section of the CESMP should include a tabulated summary of any relevant information previously provided the ESMP, it should also identify the km marker/chainage of the identified (an any additional) sensitive receptors. Impacts from relevant stages of the contractor works should be defined in this section and should reflect the relevant conditions of approval.

(viii) **MANAGEMENT MEASURES:** The CESMP should clearly state how the potential impacts of the works will be specifically managed based on the content of the ESMP and the measures that the contractor will undertake to implement these mitigations. The CESMP will propose management measures on the issues identified and will identify the cost involved and the party responsible for the management measures.

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(ix) **MONITORING PLAN:** The CESMP must detail how the CESMP will be monitored and shall include a weekly monitoring checklist. An example monitoring checklist is provided in this ESMP as a guide. The monitoring plan will include: what is to be monitored, how it will be monitored, the parameters (standards) that it will be monitored against, who will monitor, where will be monitored and the cost of the monitoring plan.

(x) **AUDIT AND REVIEW:** *Environmental auditing:* The environmental management plan should include the schedule or triggers for auditing the implementation and effectiveness of the plan. It should address both internal and external audit requirements including who is responsible for undertaking the audits and reporting the results. *CESMP review:* The CESMP should specify the schedule or triggers for reviews of the plan.

CESMP REVIEW AND AMENDMENT: The CESMP must be reviewed, updated and resubmitted to the SC for approval in response to an anticipated change of circumstances before any changes are permitted at the work sites. These circumstances include substantial design changes with environmental or social implications, changes to specific approved plans, new activities not contemplated in the Project ESMP, or additions to the Project's area of influence. No changes will be made to the Project or the project areas until it has either been confirmed by the Supervision Consultant that an update to the CESMP is not needed, or the update has been made and approved by the Supervision Consultant. The CESMP must also be updated where it is deemed that the mitigation measures are not adequate to mitigate the environmental and social risks.

CESMP MANAGEMENT SUB-PLANS: The Contractor is required to produce the management plans stipulated in this ESMP as part of their CESMP. These management plans are referred to throughout the ESMP. In addition to these management plans being a requirement for the CESMP, they will also be required as part of the tendering process to demonstrate that the Contractor has started to consider these environmental and social impacts and has the capacity within their team to plan their safeguard management strategies.

6.3.2 CESMP Sub-Plans

Construction Camp and Worker Accommodation Management Plan. Identify approved accommodation locations and layouts; define potable water, sanitation, drainage, power, fire safety, first aid, food hygiene, occupancy and minimum living-space standards; establish worker conduct requirements, access controls, quiet hours and arrangements for worker welfare and recreation; prevent nuisance and pressure on community services; inspect accommodation routinely; and maintain occupancy, inspection, complaint and corrective-action records. Laydown areas, workshops, refueling areas, storage areas and production facilities shall be managed under the Site Establishment, Laydown Area and Construction Facility Management Plan.

Waste Management Plan, including hazardous materials and hazardous waste. Maintain a waste inventory and apply the avoid–reduce–reuse–recycle hierarchy; segregate, label and securely store waste; use bunded areas and compatible containers for hazardous substances; provide safety data sheets and spill equipment; use licensed transporters and approved disposal or recycling facilities; retain manifests; prohibit burning and uncontrolled dumping; and inspect storage and disposal practices.

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Pollution Prevention and Control Plan. Identify dust, exhaust, noise, vibration, contaminated land and spill sources and sensitive receptors; specify equipment maintenance, suppression, containment, refueling and work-hour controls; establish applicable limits, monitoring locations and frequencies for air quality, noise and vibration; maintain complaint and monitoring logs; define stop-work or escalation thresholds; and implement corrective actions when standards are exceeded. Water abstraction, dewatering, stormwater and wastewater controls shall be addressed in the Water Resources and Water Quality Management Plan and the Erosion, Sediment Control and Stormwater Management Plan.

Erosion, Sediment Control and Stormwater Management Plan. Map drainage paths, slopes, disturbed areas and receiving waters; stage clearing and minimize exposed soil; install diversion drains, sediment barriers, stabilized access points and settlement controls before disturbance; inspect before and after rainfall; promptly repair failures; manage dewatering; stabilize completed areas; and maintain inspection and maintenance records.

Water Resources and Water Quality Management Plan. Identify water sources, abstraction approvals, users and sensitive water bodies; forecast demand and promote conservation; protect intakes, wells and waterways; separate clean and dirty water; define wastewater treatment and discharge criteria; monitor abstraction and upstream/downstream water quality; prevent cross-contamination; and investigate and correct adverse trends.

Biodiversity, Vegetation Clearing and Rehabilitation Management Plan. Delineate approved clearing limits, exclusion zones and sensitive habitats; require pre-clearance surveys and permits; use clearly marked boundaries and supervised clearing; prohibit unauthorized hunting, collection and vegetation damage; manage invasive species and fauna encounters; salvage and store topsoil; progressively revegetate disturbed areas; and monitor rehabilitation against measurable completion criteria.

Traffic, Transport and Road Safety Management Plan. Define approved routes, vehicle types, delivery schedules and speed limits; assess schools, settlements, crossings and other high-risk locations; provide signs, barriers, lighting, traffic controllers and safe pedestrian access; require licensed drivers, vehicle inspections, journey planning and fatigue controls; communicate disruptions; record incidents and complaints; and review controls after route or traffic changes.

Occupational Health and Safety Management Plan. Establish hazard identification and risk assessment procedures; define safe work methods, permits to work and minimum personal protective equipment; address excavation, lifting, work at height, electrical work, confined spaces, machinery and heat; provide induction, competency verification, supervision, first aid and emergency arrangements; enable hazard and near-miss reporting; conduct inspections; and track corrective actions and safety performance.

Community Health, Safety and Security Management Plan. Identify non-traffic risks to nearby residents, workers' families and other community members; secure sites, excavations, stockpiles and equipment; maintain safe access to homes, services and businesses; manage communicable-disease risks, labor-influx impacts and interactions between workers, security personnel and communities; define security personnel conduct and proportionate response requirements; provide community warnings and emergency contacts; record grievances and incidents; and verify corrective actions.

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Vehicle movements, road-user risks, crossings and traffic diversions shall be managed under the Traffic, Transport and Road Safety Management Plan.

Labor and Working Conditions Management Plan. Set lawful and transparent recruitment, contracts, wages, hours, leave and termination arrangements; prohibit forced labor, child labor, discrimination, harassment and retaliation; provide equal opportunity and suitable worker welfare; issue and enforce a worker code of conduct; maintain confidential worker grievance channels; manage subcontractor compliance; protect complainants; and retain training, grievance, disciplinary and remediation records.

Stakeholder Engagement, Community Liaison and Grievance Management Plan. Map affected and vulnerable stakeholders; disclose accessible project information and work schedules in appropriate languages and formats; define consultation methods, frequency and responsibilities; maintain a stakeholder register; provide multiple confidential grievance channels; acknowledge, assess, resolve and close grievances within stated timeframes; protect personal information; and report trends and outstanding cases.

Sexual Exploitation, Abuse, and Harassment (SEA/SH) Action Plan. Assess project SEA/SH risks and provide an action plan to require all workers and contractors to sign and be trained on a Code of Conduct with clear sanctions, establish a survivor-centered referral pathway with local service providers, provide confidential, safe and accessible reporting channels within the grievance mechanism, and respond to allegations promptly, with confidentiality and without retaliation. This plan includes raising awareness among workers and communities on SEA/SH, applying site safety measures, and reporting anonymized case trends and outstanding actions.

Cultural Heritage Management Plan and Chance Finds Procedure. Identify known heritage areas and applicable approvals; establish exclusion zones and access restrictions; brief workers before ground disturbance; require immediate cessation and protection of any chance find; notify the designated authorities and project representatives; prohibit removal or disturbance; resume work only after written clearance; and document finds, decisions and actions.

Emergency Preparedness and Response Plan. Identify credible scenarios, receptors, response resources and command roles; provide alarms, communications, evacuation routes, assembly points, first aid, firefighting and spill-response equipment; maintain emergency contact lists and coordination arrangements with local responders; train personnel and conduct periodic drills; inspect equipment; document events and drill findings; and update procedures after lessons learned.

Incident Notification, Investigation and Corrective Action Plan. Following completion of immediate response under the Emergency Preparedness and Response Plan, define incident categories, severity levels and internal and external notification timeframes; preserve evidence; assign qualified/competent investigators; determine immediate and root causes; establish accountable corrective and preventive actions with deadlines; verify effectiveness before closure; communicate lessons learned; and maintain an incident register. The plan shall also distinguish incidents from routine non-compliances and cross-reference the CESMP compliance procedure for their recording and close-out.

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Materials Sourcing, Quarry, Borrow Pit and Spoil Disposal Management Plan. Use legally authorized sources and disposal sites; document permits, land access and supplier due diligence; assess haul routes and environmental and community risks; define extraction limits, drainage, slope stability, dust, noise and traffic controls; test materials where required; track quantities and destinations; prevent disposal in waterways or sensitive areas; and progressively rehabilitate exhausted sites.

Site Establishment, Laydown Area and Construction Facility Management Plan. Obtain approval for locations and layouts; avoid sensitive receptors and natural drainage; define boundaries, access, security, traffic flow, storage, refueling, maintenance, washdown, sanitation and waste areas; provide fire and spill controls; manage lighting, noise and runoff; inspect facilities routinely; maintain housekeeping; and reinstate temporary areas when no longer needed.

Demobilization, Reinstatement and Site Closure Plan. Prepare a staged closure schedule and responsibilities; remove temporary facilities, equipment, surplus materials, waste and contaminated soil; decommission utilities and drainage safely; restore landform and drainage; replace topsoil and revegetate with suitable species; repair affected access and community assets; monitor stability and vegetation establishment; address defects; and obtain documented landowner and authority acceptance where required.

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7. ESMP Implementation

7.1. Integration of ESMP into Project Management

The ESMP will be treated as a core project management document and implemented alongside the work plan, procurement strategy, construction schedule, risk register and reporting framework. Environmental and social requirements will be translated into specific actions, responsibilities, timelines and measurable performance indicators. The ESMP will be reviewed whenever there is a material change in project scope, design, location, method, schedule or applicable legal requirement.

Planning and design. Environmental and social risks will be considered during technical design and work planning. The project team will apply the mitigation hierarchy by seeking first to avoid impacts, then minimize impacts, restore affected areas and, where residual impacts remain, identify appropriate compensatory measures. Design reviews will document how relevant ESMP measures have been incorporated.

Procurement and contracting. Applicable ESMP requirements will be included in bidding documents, specifications, bills of quantities and contracts. Tender evaluation will consider bidders' environmental and social capability, proposed staffing, relevant experience and approach to risk management. Contractors will be required to prepare activity-specific method statements and, where appropriate, a CESMP that is consistent with this ESMP before commencing the relevant work.

Mobilization and implementation. No activity with significant environmental or social risk will begin until required permits, approvals, plans, personnel, training and controls are in place. Site induction and toolbox sessions will cover relevant risks, prohibited practices, incident reporting, worker conduct, community health and safety, emergency response and grievance channels. Controls will be integrated into daily supervision and work permits.

Change management and close-out. Proposed changes will be screened for new or increased risks before approval. At completion, the project will verify reinstatement, waste removal, closure of temporary facilities, resolution of outstanding grievances and completion of corrective actions. Environmental and social close-out evidence will form part of the project completion record.

7.2. Roles and Responsibilities

TLBRP2 PMU has the following roles and responsibilties**:**

- Retains overall accountability for ESMP compliance; provides adequate authority, staffing and resources; ensures applicable approvals are obtained; reviews performance; and directs corrective action where requirements are not met.
- Integrates ESMP actions into the project, budget, procurement and decision-making processes; coordinates responsible parties; ensures that environmental and social matters are considered at progress meetings; and escalates material risks and incidents to senior management.
- *Environmental and Social Specialists (Safeguards Specialist & National Environmental Officer, Social Specialist, Resettlement Specialist, Gender Specialist)***:** Maintains the ESMP and legal or commitments register; advises the project team; reviews contractor plans and method statements; conducts inspections and audits; verifies monitoring data; maintains incident and grievance records; and prepares periodic performance reports.

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Supervising Consultant (SC) assisting the PMU has the following roles and responsibilities**:**

- Prepares the final bid package for the civil works, including all required E&S risk management provisions in the final bidding documents for the contractor
- Provides the day-to-day supervision of construction, including compliance with the ESMP and CESMP. As the only party contractually authorized to issue instructions to the Contractor, the SC will work closely with the Contractor and the Project E&S team to ensure that the civil works com ply with the detailed designs and ESMP.
- Prepares E&S monitoring results to PMU.
- Manages the review and approval process for CESMP
- Updates the ESMP, LMP and SEP as necessary to reflect changes in the designs
- In collaboration with PMU E&S specialists, provides meaningful input and guidance during community consultations on draft updates to the ESMP, LMP and SEP.
- Manages Contractor non-compliance, reporting all instances to PMU and escalates recurring non-compliance for further action.
- Manages respond to complaints and incidents received directly by SC representatives in accordance with the GRM process and reports all cases to the PMU.

The SC will engage suitably qualified and experienced E&S specialists to conduct site inspections and provide support as needed, including responding to incidents and non-compliances, reviewing the CESMP, updating the ESMP and undertaking related tasks.

The Contractor has the following roles and resposibilities:

- Resources their team with experienced and qualified full-time E&S specialists and an experienced and qualified international safeguards advisor who is resourced to make regular and ad hoc site visits.
- Allocates budget for implementation all requirements of the CESMP and employment of the E&S specialists
- Prepares CESMP in accordance with this ESMP, and have it cleared by the SC
- Carries out the works in accordance with the CESMP
- Conducts daily and weekly E&S inspections of the works to ensure compliance with CESMP and reports the results of these inspections to the SC
- Updates the CESMP as construction methodology or other features change
- Informs the SC of any changes to works or methods that are outside the scope of the ESMP for updating
- Reports all environmental and OHS incidents to SC for any action.

Table 7. Implementation Arrangement

Institutions	Functions	Key Deliverables	E&S staffing requirements
Project Management Unit (PMU)	Provide overall ESMP governance and accountability; coordinate with the World Bank; maintain adequately resourced environmental, social, OHS, grievance,	Approved E&S work plan; cleared and disclosed ESIA, ESMP, LARAP, SEP and LMP;	• Environmental and Social Specialist(s): International (Part time - PT) and National (Full time - FT)

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Institutions	Functions	Key Deliverables	E&S staffing requirements
	stakeholder engagement, land acquisition/resettlement, gender and SEA/SH functions; lead E&S risk management and updates to safeguard instruments; oversee stakeholder engagement and the grievance redress mechanism; track incidents and corrective actions; and manage E&S requirements during the maintenance period.	cultural heritage and disclosure records; quarterly E&S reports; incident notifications; corrective-action tracker; stakeholder and grievance records; World Bank review-response records; and semi-annual E&S reports.	• OHS Specialist or focal point; • GRM and Stakeholder Engagement Specialist or focal point • Land Acquisition/Resettlement Specialist • Gender/SEA/SH Specialist or focal point.
Supervision Consultant	Independently supervise and verify contractor compliance with the ESMP, CESMP and applicable E&S requirements; conduct site inspections and performance monitoring; identify non-conformances and recommend stop-work action where warranted; verify corrective-action closure; support instrument updates and stakeholder engagement; and advise the PMU on compliance and payment implications.	Site inspection reports; non-conformance notices; stop-work recommendations; verified corrective-action closure records; monthly E&S performance summaries; inputs to updated E&S instruments; stakeholder and grievance monitoring records; and payment-related compliance advice.	• International Environmental Consultant (IEC) – PT • International Social and Resettlement Consultant (ISRC) – PT • National Environmental Consultant (NEC) & OHS - FT • National Social Safeguards Consultant (NSSC) & Resettlement - FT • GRM and Stakeholder Engagement Specialist or focal point • Gender/SEA/SH Specialist or focal point.
Contractors	Prepare and implement the CESMP and supporting plans; deploy qualified environmental, social, OHS, community liaison, GRM/GBV/SEA/SH, traffic and safety personnel; undertake daily risk controls and inspections; train and induct workers; engage communities and operate the site-level grievance mechanism; report incidents and non-compliances; implement corrective actions; and stop unsafe or non-compliant work.	Approved CESMP and supporting plans; daily inspection and monitoring records; induction and toolbox-talk records; signed codes of conduct; traffic-control logs; spill records; waste manifests; stakeholder engagement and grievance logs; incident and non-compliance reports; and evidence of completed corrective actions.	• International E&S Specialist - PT • National Environmental Specialist (NES) - FT • OHS Officer – FT • National Social Specialist (NSS) & Community Liaison Officer (CLO) - FT • GRM/GBV/SEA/SH focal point

7.3. ESMP Monitoring

Monitoring will confirm whether mitigation measures are in place, effective and proportionate to the actual level of risk. The monitoring program will combine routine supervision, scheduled inspections, measurement of selected indicators, review of records, worker and community feedback, and periodic audits. An example of CESMP monitoring checklist is included in this ESMP.

Monitoring parameters. The monitoring period will run from mobilization to close out. The Contractor will submit inspection records, a consolidated monthly report, and incident notifications.

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Table 8. ESMP Monitoring Program

Parameters	Indicators	Approach
Permits and plans	Valid approvals; approved method statements; current registers and site plans	Verify before relevant work starts and after material changes
Pollution prevention and resource use	Waste segregation and disposal records; spill prevention; dust, noise, water and energy controls; monitoring results where required	Routine site inspection, with additional checks during higher-risk activities
Biodiversity and land disturbance	Approved work boundaries; vegetation clearance records; erosion controls; rehabilitation progress; protected-species observations	Inspect before disturbance, during works and at reinstatement
Labor and working conditions	Induction and training records; working hours; worker grievances; accommodation and welfare conditions; use of required controls; OHS incident report (including SEA/SH cases management report)	Review routinely and investigate complaints or trends promptly
Community health, safety and engagement	Traffic controls; access restrictions; stakeholder engagement records; community grievances; incidents involving members of the public (including CHS and SEA/SH case management report)	Monitor throughout activities that could affect nearby communities
Cultural heritage	Chance finds log entries; walkover/sign-off records; compliance with Chance Find Procedures; consultation record and mitigation agreement; status of any authority clearance	Inspect before ground-disturbing works at each section
Incidents and corrective actions	Incident notifications; investigation findings; assigned actions; target dates; evidence of close-out and effectiveness checks	Track continuously until verified closure

Inspections and reporting. The Contractor will complete routine checks and submit agreed monitoring information to the SC. The SC will conduct documented inspections at a frequency based on activity risk and performance. The Project Manager will receive periodic summaries covering compliance status, monitoring results, incidents, grievances, stakeholder engagement, training, open actions and emerging risks. Significant issues will be reported outside the routine cycle.

Non-conformance and corrective action. Findings will be recorded with a clear description, risk rating, responsible person and due date. Immediate action will be taken where there is an imminent threat to people or the environment, including suspension of the affected activity when necessary. Closure will require evidence that the action has been completed and that it addresses the underlying cause. Repeated or overdue findings will be escalated in accordance with the contract and project governance arrangements.

Incident and grievance management. Incidents will be made safe, notified, investigated and documented in accordance with applicable requirements. Serious incidents will be escalated immediately through the approved notification pathway. Grievances will be acknowledged, assessed, responded to and tracked to closure within established service standards, with confidentiality and protection from retaliation maintained.

7.4. ESMP Implementation Budget

The project budget shall include sufficient resources for screening, updates of E&S Instruments, consultations, disclosure, grievance management, training, supervision, erosion and sediment control, waste management, OHS, road safety, monitoring equipment, incident response, and maintenance-phase environmental and social controls.

The estimates are ***indicative and should be refined*** during implementation stage by PMU and Supervision Consultant. Costs should be included in the project budget, contractor bills of quantities, supervision contracts, and maintenance allocations as applicable. The contingency line should not be used to reduce core mitigation, monitoring, stakeholder engagement, or capacity-building commitments.

Table 9. Indicative Budget for E&S Risk Management Implementation

Budget item	Purpose and scope	PMU (USD)	Contractor (USD)	Supervision (USD)	Total (USD)
Updates of E&S instruments, CESMP preparation	Preparation, review, disclosure, and updating of the E&S instruments, CESMP and subplans	—	30,000	25,000	55,000
CESMP implementation	E&S measures. [Note that drainage, slope protection, pavement reinstatement, and traffic safety items are separately priced in the civil works BoQ]	—	150,000	—	150,000
CESMP monitoring, records, and compliance reporting	Daily and weekly inspections, checklists, incident and non-conformance records, corrective action tracking, monthly CESMP reporting, wet-season controls, and participation in supervision audits.	—	20,000	25,000	45,000
Stakeholder engagement and disclosure	Consultations and disclosure with affected communities and road users, local-language materials, grievance communication, traffic disruption notices, access arrangements, vulnerable-user engagement, and follow-up meetings.	5,000	15,000	10,000	30,000
Capacity-building workshops and training	Training on ESF and ESS requirements, ESMP implementation, OHS, traffic management, grievance handling, incident reporting, chance	10,000	10,000	10,000	30,000

Budget item	Purpose and scope	PMU (USD)	Contractor (USD)	Supervision (USD)	Total (USD)
	finds, labor management, and maintenance-phase E&S controls.				
Grievance redress mechanism (GRM) operation	Grievance intake channels, logbook and database, community focal point support, resolution meetings, communication materials, and periodic reporting.	10,000	5,000	5,000	20,000
SEA/SH Prevention and Risk Management	Implementation of the SEA/SH Action Plan, including risk assessment, monitoring, awareness-raising and training, communication materials, and referral costs to service providers.	10,000	7000	3000	20,000
Specialist technical support	Short-term inputs from geotechnical, biodiversity, social, resettlement, or cultural heritage specialists if screening identifies specific risks requiring targeted advice. Provisional allowance for specialist inputs on an as-needed basis.	35,000	—	—	35,000
Total estimated E&S risk management implementation and capacity-building budget	-	**70,000**	**237,000**	**78,000**	**385,000**

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8. Capacity Development and Training

Capacity building will be treated as a continuous implementation function rather than a one-off training event. The program will combine awareness raising, role-specific technical training, contractor induction, field coaching, refresher training, and learning from incidents, grievances, audits, and World Bank review comments. Training will be delivered before mobilization and updated when monitoring identifies performance gaps. Records will document topic, trainer, participants, sex-disaggregated attendance where appropriate, learning materials, competency checks, and follow-up actions.

Table 10. Capacity Building Approach

Training topic	Target participants	Timing / frequency	Key content
World Bank requirements	PMU, Supervision Consultant, Contractor management	Before procurement and refreshed annually or when instruments are updated	Risk-based screening, ESMP/CESMP hierarchy, disclosure, documentation, reporting, and adaptive management.
OHS and emergency preparedness for mountainous road works	Contractor supervisors, operators, workers, flaggers, first-aid personnel	Before mobilization, before high-risk works, and monthly toolbox refreshers	Steep-slope work, machinery safety, traffic interfaces, emergency evacuation, incident reporting, PPE, and stop-work authority.
Slope stability, erosion control, drainage, and spoil management	Contractor engineers, Environmental Site Officer, Supervision Consultant, equipment operators	Before earthworks and before each rainy season	Sediment controls, temporary stabilization, bioengineering, drainage maintenance, spoil disposal, prohibition of uncontrolled side-casting, and rainfall-triggered inspections.
Stakeholder engagement, GRM, SEA/SH-sensitive referral, and worker conduct	PMU social team, Contractor Community Liaison Officer, supervisors, workers, local focal points	Before mobilization and refreshed every six months or after serious complaints	Meaningful consultation, disclosure, grievance intake and closure, confidentiality, survivor-centered referral pathways, code of conduct, and retaliation prevention.
Land access, livelihood impacts, and cultural heritage chance finds	PMU safeguards team, Contractor, Supervision Consultant, local authorities, customary leaders where appropriate	Before site clearance and repeated before works in sensitive areas	Asset verification, compensation-before-impact principle, temporary access management, sacred-site avoidance, chance-find stop-work requirements, and documentation.

9. Emergency Preparedness and Response Plan

9.1. Objective, Scope, and Implementation Requirements

As a mandatory component of the CESMP, the Contractor shall prepare, maintain, and implement a site-specific Emergency Preparedness and Response Plan (EPRP) proportionate to the nature and scale of the environmental and social risks and impacts. The EPRP shall support implementation of the mitigation hierarchy and the relevant requirements of the World Bank Environmental and Social Framework (ESF), including ESS1, ESS2, ESS3, and ESS4. The EPRP shall protect workers and project-affected communities, prevent or minimize environmental harm, enable a rapid and coordinated response, and support timely recovery and corrective action.

The EPRP shall define the incident command structure; communication, notification, and escalation protocols; and the respective responsibilities of the Contractor, Supervision Consultant (SC), and PMU. It shall include current emergency contact details, evacuation routes and assembly points, first-aid and medical-referral arrangements, measures to protect nearby communities and sensitive receptors, and procedures for containment, clean-up, investigation, documentation, corrective action, and closure. Emergency equipment and materials shall be identified, maintained in serviceable condition, and readily accessible. Contractor personnel shall receive induction and periodic refresher training, and site-specific drills shall be conducted at planned intervals. The Contractor shall document lessons from drills, incidents, inspections, and changing site conditions and shall update the EPRP accordingly, subject to review by the Supervision Consultant (SC) and approval by the PMU.

9.2. Emergency Notification and Wet-Season Preparedness

As a The TLBRP2 Supervision Consultant's Occupational Health and Safety (OHS) Specialist/Focal Point shall be the primary coordination point for emergencies arising from the civil works. The OHS Specialist/Focal Point shall remain contactable at all times and shall have formally delegated authority to require corrective action, suspend unsafe activities, and recommend resumption only after the relevant risks have been reduced to an acceptable level. For incidents with environmental or community implications, the OHS Specialist/Focal Point shall immediately coordinate with the Supervision Consultant's Environmental Specialist, the Contractor's Environmental, Social, Health and Safety (ESHS) personnel, the Project Management Unit (PMU), emergency services, and relevant authorities, as applicable. All emergencies and significant incidents shall be managed in accordance with the approved Contractor's Environmental and Social Management Plan (CESMP), entered in the project incident register, investigated to identify root causes and corrective actions, and notified and reported through the project's agreed escalation procedures and applicable World Bank requirements.

Where practicable, construction activities shall be scheduled to avoid periods of highest wet-season risk. Where work must continue, the Contractor shall implement a risk-based work program that accounts for forecast storms and heavy rainfall, access constraints, worker and community safety, slope stability, drainage capacity, erosion and sediment transport, and the potential release of fuels, wastes, or construction materials.

The Contractor shall monitor reliable weather forecasts and site conditions, establish documented trigger levels for protective action and temporary suspension of high-risk activities, and inspect drainage systems, stockpiles, excavations, slopes, access routes, water crossings, and erosion and

sediment controls before forecast rainfall. Deficiencies shall be corrected before the event. Following significant rainfall or storms, the Contractor shall promptly inspect affected areas, make them safe, repair or replace damaged controls, remove accumulated sediment and debris to approved locations, and retain records of the actions taken. The Supervision Consultant (SC) shall verify the adequacy and timely close-out of these measures through routine and event-based inspections.

At a minimum, the Contractor shall:

- Review daily weather forecasts and site conditions; identify periods of elevated risk; and communicate warnings, trigger levels, responsibilities, and work restrictions to supervisors, workers, Subcontractors, and affected stakeholders, as appropriate.
- Inspect and record the condition and effectiveness of erosion, sediment, drainage, and pollution-prevention controls before and after significant weather events; promptly correct deficiencies; and incorporate lessons learned and good international industry practice into subsequent work planning.
- Maintain sufficient trained personnel, equipment, materials, communications, transport, first-aid supplies, spill-response resources, and standby erosion and sediment controls to implement the EPRP. Readiness checks, drills, inspections, incidents, corrective actions, and evidence of close-out shall be documented and made available to the Supervision Consultant and PMU for review.

9.3. Incident Notification, Escalation and EPRP Governance

Any emergency, incident, or accident—including a vehicle collision, injury, landslide, fire, or release of hazardous material—shall be reported immediately to the designated SC emergency contact located at the Engineer's facilities. The CESMP shall include current telephone numbers, alternative contacts, and arrangements for receiving notifications at all times.

Reports may be made by the Contractor, PMU or SC personnel, emergency services, local authorities, project-affected persons, or other members of the public. The receiving officer shall record the time, location, nature and apparent severity of the event; immediate risks; persons affected; actions already taken; and the name and contact details of the reporter, where available.

Local government contact: Municipality Administrator's duty officer, Municipality Administrator, or Vice Administrator. Current telephone numbers shall be confirmed and included in the CESMP and posted at relevant work sites.

Upon receipt of a notification, the PMU shall initiate the project escalation protocol, notify the relevant ministry and authorities as required, and instruct the SC to confirm that the Contractor has mobilized the personnel, equipment, and controls necessary to manage the emergency. Immediate response actions shall not be delayed by pending written instructions where there is an imminent risk to people or the environment.

The Contractor shall prepare the EPRP as a sub-plan of the CESMP before commencing the relevant works. The plan shall cover, at a minimum, landslides and slope failure, hazardous-material incidents, oil and fuel spills, traffic incidents, fire, natural hazards, and work-site injuries. It shall specify immediate response and notification procedures, incident classification and escalation, coordination with communities and authorities, and an organizational structure with named personnel, alternates, responsibilities, and decision-making authority.

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The Contractor shall submit the EPRP to the SC for review and to the PMU for approval. The PMU and Supervision Consultant shall monitor implementation through inspections, drills, document review, and verification of corrective action close-out. Emergencies, response actions, investigation findings, and status of corrective actions shall be summarized in the Contractor's monthly progress report, without prejudice to immediate notification and any separate reporting required under the project's incident procedures.

9.4. Landslide and Slope-Failure Response

Landslides or slope failures may occur during excavation, slope cutting, or prolonged heavy rainfall. The Contractor shall identify and map susceptible areas, install appropriate stabilization and drainage measures, and conduct documented inspections by at least two trained personnel, with increased frequency during the wet season and after trigger events. Warning signs, including cracking, bulging, blocked drainage, seepage, or falling material shall activate predetermined controls, including exclusion zones and suspension of work where necessary.

If a landslide or slope failure occurs, the Emergency Response Team shall prioritize life safety, stop work, isolate the affected area, evacuate persons to a designated safe location, and establish traffic controls and warning signs. Emergency medical assistance shall be requested immediately for any injury. Entry shall be prohibited until a qualified person confirms that the area is stable, and the PMU and Supervision Consultant agree that work may safely resume.

The Contractor shall mobilize the rescue equipment, communications, transport, first-aid supplies, and qualified personnel identified in the EPRP and shall maintain a contemporaneous log of decisions, notifications, response actions, and resources deployed.

The Contractor's HSE Manager shall serve as on-site incident commander, supported by the Project Manager and designated technical specialists. Roles shall be transferred to public emergency services where required by law or agreed protocols, while the Contractor continues to support the response.

The Contractor shall promptly notify the PMU, Supervision Consultant, and relevant authorities in accordance with the project escalation protocol. A technical assessment shall determine residual instability, environmental and community risks, remedial works, monitoring requirements, and conditions for reopening the area. Investigation findings and corrective actions shall be documented and tracked to closure.

9.5. Hazardous Materials Management and Emergency Response

Hazardous materials shall be managed in accordance with applicable law, the CESMP, safety data sheets, and good international industry practice. The following minimum controls shall apply:

Hazardous materials shall be inventoried, classified, and labelled in English and Tetum. They shall be stored by compatibility class in secure, ventilated, weather-protected areas with secondary containment, restricted access, appropriate signage, and readily available safety data sheets.

Only authorized and trained personnel shall issue or handle hazardous materials. Quantities issued, used, and returned shall be recorded, and unused materials shall be returned to the designated storage area at the end of each shift.

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Any release shall be stopped at source where safe to do so, contained to prevent migration to soil, drains, waterways, or community areas, and cleaned using suitable spill-response materials and personal protective equipment. Contaminated absorbents, soil, and other residues shall be characterized, packaged, labelled, transported, and disposed of at a facility approved by the relevant authority with a waste manifest retained. Appropriate fire extinguishers and spill kits shall be inspected regularly and kept serviceable and accessible.

Personnel who store, transport, or use hazardous materials shall receive role-specific training on hazards, safe handling, personal protective equipment, emergency actions, and reporting. Training effectiveness shall be tested through periodic drills and documented competency checks.

9.6. Oil and Fuel Spill Prevention and Response

Oil and fuel spills may occur during equipment operation, refueling, maintenance, transport, or storage. The Contractor shall implement the following minimum prevention and response measures:

Inspect mobile plant, fixed equipment, refueling areas, and oil and fuel storage areas daily for leaks, damaged hoses or seals, inadequate containment, and poor housekeeping. Record inspection of findings and corrective actions.

Identify the source and cause of any leak and promptly repair or replace defective hoses, seals, lubrication components, or other parts. Equipment that cannot be repaired immediately shall be isolated and removed from service until it is safe to operate.

For a spill, stop the source where safe, eliminate ignition sources, protect drains and waterways, contain the release, and recover free product. Use suitable absorbents and personal protective equipment for clean-up. Contaminated materials shall be placed in labelled containers and transported with a waste manifest to a disposal or treatment facility approved by the relevant authority, including the Tibar disposal site only where it is authorized to receive the relevant waste stream.

All wastes generated during spill response, including contaminated soil, absorbents, personal protective equipment, containers, and recovered product, shall be segregated, characterized, securely packaged, labelled, temporarily stored, transported, and disposed of in accordance with applicable legal requirements and the approved CESMP. Disposal shall be limited to facilities authorized by the relevant authority, and the Tibar disposal site shall be used only where it is authorized to accept the relevant waste stream. Each consignment shall be accompanied by a waste manifest, and the Contractor shall retain records demonstrating lawful transfer, receipt, treatment, and final disposal.

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10. Post-Construction Decommissioning

This decommission and rehabilitation plan presents the concept closure and post-closure rehabilitation. The Proponent is committed to requiring the Contractor to decommission and rehabilitate the accommodation facilities, areas used off-site for associated facilities e.g. borrow pits and quarries, manufacturing areas used for crushing rock, asphalt mixing plan and concrete casting or batching plan; as the Contract clauses include these requirements. Decommission and rehabilitation will be accomplished in compliance with the requirements of the Government of Timor Leste (GoTL) and the safeguards policy of the supporting development partner agency, based on the principles established in the following sections

10.1. Objectives and Scope

The primary objective of the Decommission and Rehabilitation Plan is to provide a framework, to enable the Contractor to rehabilitate the disturbed areas, associated with the quarry and manufacturing area operations that are required for implementation of the Project. The Plan aims to ensure that areas developed for quarrying and manufacturing aggregates during the Project (i.e. gravel extraction, quarry, crushers, batching plant and asphalt mixing plant) and base camp are cleaned after project completion, decommissioned and rehabilitated; to ensure after closing they do not impose any long-term hazards to public health and safety or to the environment. All structures e.g. heavy machinery and plants such as crushers, asphalt plant, and any resultants contamination to ground or water bodies shall be removed.

The removal and cleanup must be completed to the satisfaction of the resident engineer and endorsed by PMU before the Contractor is released. The implementation of the Decommission and Rehabilitation Plan will ensure that soil erosion and subsequent sedimentation will be minimal, and that appropriate vegetation is replanted.

The specific objectives of decommissioning and rehabilitating are to restore the site to an acceptable satisfactory condition by:

- Eliminating unacceptable health hazard and ensuring public safety. Restoring the site to a condition that is visually acceptable to the community;
- Reclaiming the areas impacted for future use (amenity uses for example). Preparing the site to be amenable to support vegetation;
- Removing and disposing appropriately of any contaminated soil. Ensuring physical stabilization of the soil (a combination of smoothing and contouring slopes, replacing overburden, topsoil and revegetating);
- Ensuring that final drainage of the site does not adversely affect neighboring properties.

10.2. Decommission and Rehabilitation Strategy

The decommission and rehabilitation strategy is to establish self-sustaining vegetation, as well the associated sites i.e. a self-sustaining complex that capable of stabilizing surface soils and reducing erosion similar to that found in the surrounding areas. The complex should be similar to that found in the surrounding areas to ensure that soil erosion and subsequent sedimentation will be minimal.

The Decommission and Rehabilitation Plan for the quarries closure used by the Contractor will include:

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- Mechanisms to enable all stakeholders to have their interests considered during the quarry closure process;
- Ensure the process of decommissioning/rehabilitating is considered early in the operation of the facilities; thus it can occur in an orderly, cost-effective and timely manner when it is necessary at the end of the life of the manufacturing facilities;
- Ensure there is clear accountability, and adequate resources are established at the outset, for the implementation of the closure plan; and
- Establish indicators that will demonstrate the successful completion of the closure process.

10.3. Performance Criteria

The Decommission and Rehabilitation Plan will take into consideration the following essential criteria:

- Public health and safety;
- The national regulatory requirements;
- Expectations of stakeholder safeguard policies;
- Geotechnical stability and the suitability of final landforms;
- Sustainability of revegetation areas and surrounding ecosystems; and
- Post-closure land use objectives.

The Contractor will ensure that all relevant national legislative requirements and management commitments have been met. The objectives of land use post-closure and closure management requirements will be established and agreed upon with stakeholders and local authorities through effective consultation. All costs and resource requirements, including consultation and accountability for the closure of the quarries, will be determined and facilitated by the Contractor. Potentially contaminated areas will be remediated to acceptable levels as agreed with the Engineer, other stakeholders, and the regulatory agencies.

10.4. Decommission and Rehabilitation Plan

The Decommission and Rehabilitation Plan means the Contractor's proposal, as required by the Engineer and environmental authority, approved for decontaminating, recontouring, revegetating and rehabilitating of the affected land by the authorized body, which shall include but not limited to:

- Proposed practices to adjacent surface resources. Specification for surface gradient restoration to an angle of repose suitable for the proposed subsequent use of the land after reclamation is completed;
- The proposed method to accomplish recontour and restoration. Manner and type of revegetation or other surface treatment of the affected area;
- Method of compliance with air and water pollution prevention laws where applicable. Method of control of contaminants and disposal of mining refuse;
- Method of restoration or establishment of stream channels or stream banks to a condition minimizing erosion, siltation and other pollution;
- Sketch maps and diagrams of the proposed final landform and other supporting documents as may be reasonably required by the resident engineer and authority;

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- A time schedule presenting the sequence of actions and events to achieve the requirements agreed on outcomes.

10.5. Guideline specification

The final slope in all excavated soil, sand, gravel and other unconsolidated soil materials shall be at such an angle as to minimize the possibility of slides and be consistent with the future use of the land. The Supervision Consultant's Engineer will decide on the maximum slopes considered suitable for land. The following mitigation measure will be required:

- The land will be cleared of rubbish, surplus materials, temporary structures and equipment, and all parts of the land shall be left in condition as close as possible to that prior using;
- Provision of safety condition to persons, animals and to adjoining property. All overburden and spoil shall be left in a configuration which is in accordance with accepted conservation practices and which is suitable for the proposed subsequent use of the land;
- Suitable drainage ditches shall be constructed or installed to avoid conditions where small pools of water that are or are likely to become noxious, foul, collect and or remain on the mined area. Ponds shall be considered adequately reclaimed lands when approved by the authorized body subject to the approval of all other stakeholders. Surface drainage must be designed to minimize erosion during runoff and major rainfall events;
- The type of vegetative cover and methods of its establishment shall be specified, and in every case shall conform to the accepted and recommended agronomic and restoration practices as established by the Ministry of Agriculture and Fisheries. Replanting species will be agreed with the local suco chief in liaison with the landowners;
- Topsoil stripped from the surface in the pre-construction and stockpiled shall be used for final cover to re-contoured slopes where practicable. Un-usable material including overburden, screenings, and rocks, should be placed in the pit bottom and covered with the previously stripped topsoil;
- Pits shall be backfilled with clean or inert fill. There shall be no material of deleterious nature (i.e. any material that would be classed as hazardous or waste). Building rubble may only be used with the approval of the resident engineer and endorsed by PMU;
- The site shall be graded to match or blend with existing contours. If hard rock pits remain these should be multi-benched. Once the site is reclaimed, any fences where they exist shall be removed to permit re-vegetation;
- Access and haul roads to the areas must be restored to the standard before the works commenced or better in a manner mutually agreeable with the local suco chief as approved by the Resident Engineer and endorsed by PMU.

10.6. Decommission and Rehabilitation Plan Updated

Within 12 months of obtaining the Environmental License, the Contractor will develop a detailed updated Decommission and Rehabilitation Plan to be approved by the Engineer and endorsed by the PMU. It will include all the above measures ensure the timely removal of all installations, plant and equipment and the restoration of the sites to their original condition prior to the commencement of works.

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The updated Decommission and Rehabilitation Plan will ensure all infrastructure not required by the post-closure land user (GoTL) will be removed and appropriately disposed of in the designated disposal sites. The Contractor will ensure that all post operational landforms will be shaped, thus the sites are geo-technically stable and adequately consider erosion and drainage.

The Contractor will ensure the extent possible and practicable final landforms are compatible with the surrounding landscape. A local native vegetation cover is planned to be re- established on all disturbed areas. There will be no unsafe site areas where the general public could inadvertently gain access.

10.7. Decommission and Rehabilitation Outcomes

The final outcome of the Decommission and Rehabilitation Plan will achieve that no infrastructure left on site unless agreed to by regulators and the post-mining land managers (GoTL), including:

- Vegetation in rehabilitated areas will have values acceptable to the local authority and with species typical of the surrounding natural and managed ecosystems;
- Rehabilitated areas provide appropriate land use potential for the local land users and habitat for fauna;
- Surface hydrological patterns or flows not adversely affected or are developed and improved. Disturbed surfaces rehabilitated to facilitate future target land use (if any).

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11. Reporting Requirements

Contractor Reporting Requirements:

- Submit minutes of consultations with communities and Project Affected Persons, together with an evaluation of the implementation and performance of programs and mitigation measures.
- Submit a Monthly Progress Report to the SC that includes routine monitoring results and findings; completed checklists, monitoring forms, and supporting documents; the status of mitigation measures required by the Environmental License and the ESMP across all road sections and off-site installations; and details of complaints received during the reporting period.
- Submit all reports required by ANM in support of the mineral license and summarize their key matters in the monthly reports to the PMU.
- Verify the implementation of environmental mitigation measures through daily and weekly inspections.
- Maintain records of all environmental mitigation activities undertaken by the Contractor, specifying what was done, where, when, how, and why. Record complaints received during the month and their resolution or referral to the Grievance Redress Mechanism (GRM), while maintaining confidentiality for gender-related and other discrimination-based complaints.

Supervision Consultant Reporting Requirements:

- **Weekly verification:** The Supervision Consultant (SC) shall assist the PMU by verifying the Contractor's implementation of environmental mitigation measures through weekly inspections and investigations.
- **Monthly reporting:** The SC shall submit a Monthly Progress Report to the PMU summarizing the status of environmental mitigation measures across all road Project sections and any off-site installations.
- **Quarterly reporting:** The SC shall submit a Quarterly Environmental Monitoring Report to the PMU detailing monitoring results, trends, compliance issues, and the effectiveness of mitigation measures across all road Project sections; the report also includes any off-site installations.

PMU Reporting Requirements:

The PMU will report every six months on the environmental and social monitoring to the Ministry of Public Works and the project development partner with a summary of environmental monitoring and the implementation of mitigation measures for the road Project and the off-site installations. These reports will incorporate the main items raised in Contractor's monthly reports and the environmental monitoring reports prepared by SC and endorsed by PMU, as well as all other items required by MPW and the World Bank.

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Annex 1.Environmental and Social Mitigation Measures

Potential Impacts	Addressed In:	E&S Mitigation Measures	Estimated Mitigation Costs	Responsible Party	Supervising Party
Pre-Construction Phase					
Social disruption from land acquisition procedures and labor influx	SEP, LMP, CESMP, GRM Manual	• Communicate survey schedules, land rights, and valuation procedures clearly and early through local authorities and consult with affected communities • Revisit earlier Suco-level consultations to confirm proper engagement with Suco representatives before construction begins • Contractor to arrange inclusive consultation with Project-Affected Parties per the SEP prior mobilizing to site • Enforce a Worker Code of Conduct from early mobilization, addressing SEA/SH risks and requiring respect for local customs, including Tara Bandu and Lulik • Prioritize local hiring and promote equal access to work opportunities to reduce community discontent over non-local labor and to avoid excluding vulnerable groups. • Keep the Project GRM operational from pre-construction, with channels accessible at Suco level to raise and resolve concerns on land, compensation or worker conduct	Part of PMU operational and SEP budget	PMU, Contractor	PMU, Supervision Consultant
Physical/economic displacement due to land acquisition for the right-of-way and ancillary sites (borrow pits, spoil disposal, laydown areas)	LARAP, ESIA	• Update the LARAP based on a complete detailed measurement survey, applying an entitlement matrix that recognizes customary and use rights as well as formal title, consistent with ESS5 • Apply the mitigation hierarchy: minimize land take through design adjustments (retaining the existing alignment and reserve wherever feasible) before	Include in LARAP compensation budget (full replacement cost and livelihood restoration allowances)	PMU (Social/Resettlement Specialist)	PMU

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Potential Impacts	Addressed In:	E&S Mitigation Measures	Estimated Mitigation Costs	Responsible Party	Supervising Party
		compensating unavoidable losses at full replacement value • Disclose the LARAP and entitlements to affected communities, through Suco Councils and Rai Nain, prior to any land acquisition, in Tetum-language and low-literacy-appropriate formats • Provide livelihood restoration support for affected roadside vendors, small businesses, and agricultural/tree-crop cultivators prior to site clearance • Conduct periodic stakeholder engagement with PAPs following the SEP and LARAP recommendations, and fully establish and publicize the GRM before land acquisition begins • Compensate for acquired land and assets, and resettle displaced households, where possible, on suitable land in situ that retains the same clan ownership			
Damage or disturbance to physical cultural resources and sacred sites	DED/ Road Design, CHMP and CFP, CESMP	• Conduct pre-clearance joint walkovers with community elders and local authorities to map and demarcate known 'lulik' sites, sacred trees, and graves • Adjust design and boundaries where feasible to avoid physical intrusion into cultural/sacred sites • Include the CHMP and CFP in the Contractor's CESMP • Facilitate customary consensus-building and required traditional ceremonies, overseen by traditional custodians, if relocating boundary markers is unavoidable • For the horizontal cave, commission a joint speleological, geotechnical and cultural investigation prior to finalizing the detailed design, to confirm the cave's extent, structural condition and connectivity to the broader karst system	Included in Contractor's CESMP provisional sum (CHMP/CFP implementation)	PMU, Contractor.	PMU, Supervision Consultant, responsible cultural-heritage authority

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Potential Impacts	Addressed In:	E&S Mitigation Measures	Estimated Mitigation Costs	Responsible Party	Supervising Party
Disproportionate adverse impacts on vulnerable and marginalized groups from land acquisition and construction activities	LARAP, SEP	• Screen all Project-Affected Persons during LARAP verification to identify baseline vulnerability indicators (gender of household head, age, disability, land tenure insecurity) • Hold dedicated, culturally accessible focus group discussions in Tetum (or relevant local dialects) with women and vulnerable community members at accessible venues and times • Ensure compensation and assistance packages include vulnerable-group considerations and protocols guaranteeing women retain control over compensation shares • Provide tailored logistical assistance during physical relocation or asset clearance for elderly persons and households headed by people with disabilities	Included in LARAP and SEP budget	PMU Social Safeguards/Gender Specialist	PMU
Incomplete baseline information and insufficient design verification	ESIA, DED	Verify spoil sites, water sources, noise and air receptors, biodiversity, temporary facilities and cultural values; incorporate findings into drawings, quantities, specifications and method constraints; apply hold points where unresolved.	Included in investigation and design costs	PMU and Design Team	Supervision Consultant
Ancillary-site, materials and supply-chain risks	DED, Procurement, CESMP, Permits	Confirm locations and capacity; screen land access, permits, stability, biodiversity, heritage, safety, water demand and pollution; use authorized sources; verify suppliers; require weed controls and progressive rehabilitation.	Included in procurement, permitting and contractor costs	Contractor	PMU and Supervision Consultant
Damage to or interruption of utilities and community infrastructure	DED, CESMP	Consult providers and communities; verify plans and field locations; protect, relocate and reconnect services; notify users; minimize interruptions; repair accidental damage promptly at Contractor expense.	Included in utility relocation and Contractor costs	Contractor and utility providers	PMU and Supervision Consultant
Early contractor mobilization risks	Procurement, CESMP	Approve CESMP and site-specific plans before works; mobilize qualified ESHS personnel; induct workers; test	Included in Contractor mobilization and CESMP costs	Contractor	PMU and Supervision Consultant

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Potential Impacts	Addressed In:	E&S Mitigation Measures	Estimated Mitigation Costs	Responsible Party	Supervising Party
		grievance and emergency channels; do not proceed until readiness controls are verified.			
Construction Phase					
Vegetation removal and modified-habitat disturbance	CESMP	Survey and approve footprint; avoid important trees; minimize clearing; prohibit unauthorized clearing; conduct pre-clearance checks; manage timber and topsoil; progressively stabilize and revegetate with weed-free local species.	Included in earthworks and rehabilitation costs.	Contractor	PMU and Supervision Consultant
Slope instability, landslide, rockfall and erosion	DED, Procurement, CESMP	Verify geotechnical conditions; use staged cutting, benches, temporary support, controlled fills and drainage; set rainfall/movement thresholds; maintain exclusion zones; inspect after rain; verify permanent protection before opening.	Included in geotechnical, earthworks and slope-protection costs.	Contractor and Design Team	PMU and Supervision Consultant
Surplus material and spoil disposal	CESMP	Prepare a corridor-wide material balance; maximize suitable reuse; approve only sites with lawful access, capacity and stability; compact and profile spoil; protect drainage; rehabilitate progressively; track source, volume and destination.	Included in material management and disposal costs	Contractor	PMU and Supervision Consultant
Surface-water quality, hydrology and community water supply	CESMP	Verify priority sources; maintain flows and access; provide replacement supply before interruption; install erosion and sediment controls; isolate in-stream works; prohibit pollutant discharges; intensify monitoring during rain and incidents.	Included in drainage, monitoring and pollution-control costs	Contractor	PMU, Supervision Consultant and water authorities
Dust, emissions, haulage, stockpiles, crushing and batching nuisance and community safety	CESMP	Map receptors; control dust with sustainable water, speeds, truck covers and stabilization; maintain plant and prohibit burning; site facilities with adequate separation; fence sites, control access and traffic, stabilize stockpiles and maintain complaint channels.	Included in plant operation, traffic and environmental-control costs	Contractor	PMU and Supervision Consultant
Noise and vibration	CESMP	Use quieter equipment and methods; maintain silencers; install barriers where practical; locate stationary plant away from receptors; restrict high-noise work; notify communities; monitor against conservative criteria.	Included in equipment, monitoring and noise-control costs	Contractor	PMU and Supervision Consultant

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Potential Impacts	Addressed In:	E&S Mitigation Measures	Estimated Mitigation Costs	Responsible Party	Supervising Party
Waste, hazardous materials, spills, borrow areas, quarries and temporary facilities	CESMP	Maintain inventories; segregate and label waste; use approved carriers and facilities; provide secondary containment and spill kits; prohibit dumping/burning; screen and permit ancillary sites; implement approved layouts, management, rehabilitation and closure plans.	Included in waste, hazardous material and ancillary-site costs.	Contractor	PMU, Supervision Consultant and permitting authorities
Construction traffic, road safety, livelihoods and access restriction	CESMP, LARAP	Implement approved traffic plan; define routes, speeds, delivery windows, barriers, flaggers and pedestrian paths; maintain single-lane access; give at least seven days' notice of restrictions; provide temporary access and compensation where required.	Included in traffic management and LARAP costs	Contractor	PMU, Supervision Consultant, road authorities and Suco authorities
Occupational health and safety	CESMP	Implement a resourced OHS system; provide qualified supervision, training, risk assessments, method statements, permits, separation, PPE, welfare, first aid and rescue; authorize high-risk work; suspend repeated non-compliance; provide reasonable accessibility.	Included in Contractor OHS costs	Contractor	PMU and Supervision Consultant
Labor influx: strain on local services, utilities, community conflict, and community health and safety	LMP; Guidelines on Worker Camps/ Accommodation	• Provide adequate housing and independent basic services (power, water, sanitation, wastewater treatment, medical care) at worker camps, gender-separated and disability-accessible, and agreed with local communities • Implement pre-employment medical screening and ongoing communicable-disease awareness programs (including HIV-STI) for workers and host communities • Coordinate with Suco authorities to monitor local market prices and establish dispute-resolution mechanisms for host-worker friction • Maximize local labor recruitment to reduce the required size of the influx workforce • Strictly enforce a minimum working age of 18, verified via national ID or birth certificate	Included in Contractor's camp establishment/ operation budget (CESMP/BoQ)	Contractor	PMU; Supervision Consultant

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Potential Impacts	Addressed In:	E&S Mitigation Measures	Estimated Mitigation Costs	Responsible Party	Supervising Party
		• Conduct regular unannounced labor inspections of work fronts, subcontractors and supply chains			
Gender-based violence, sexual exploitation and abuse involving project workers	SEA/SH Action Plan; LMP; Worker Code of Conduct	• Implement the SEA/SH Action Plan (Annex 10) and include it in the CSEMP • Require all project personnel, managers, contractors, and subcontractors to sign a Worker Code of Conduct with explicit prohibitions on SEA/SH • Provide continuous, mandatory SEA/SH sensitization and induction training in Tetum for workers and local communities • Establish a confidential, survivor-centered GRM channel partnered with existing local SEA/SH service providers. • Restrict unauthorized worker movement into adjacent suco residential zones after working hours	Included in Contractor's CESMP provisional sum. PMU GRM operational budget and SEA/SH Action Plan budget.	Contractor; PMU Gender Specialist/ GRM Focal Point	PMU
Temporary access restriction to basic services, farmland, gardens and roadside trading points during construction	LARAP; TMP	• Maintain at least single-lane traffic and pedestrian access at all times during construction, with flag-persons/traffic controllers at active work fronts • Implement traffic and road safety management plan • Provide advance notice (minimum 7 days) of planned access restrictions or diversions via Suco/Aldeia notice boards and community meetings • Construct temporary access tracks to gardens/coffee plots severed by works, in consultation with affected households • Schedule the most disruptive works outside the June–August coffee harvest window where feasible • Compensate temporary loss of livelihood or trading income under the LARAP if access cannot be maintained	Included in Contractor's CESMP budget (temporary access tracks) and LARAP budget (access-disruption compensation)	Contractor; PMU	Supervision Consultant
Inequitable distribution of construction	LMP; SEP	• Set local-hiring targets and quotas for women and vulnerable groups in the contractor's labor recruitment plan	No material additional cost; managed through recruitment/procurement procedures (LMP/CESMP)	Contractor; PMU	Supervision Consultant

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Potential Impacts	Addressed In:	E&S Mitigation Measures	Estimated Mitigation Costs	Responsible Party	Supervising Party
employment and business benefits		• Publicize employment and local-procurement opportunities transparently through Suco Councils and community meetings, in Tetum and low-literacy-appropriate formats • Prioritize local sourcing of construction materials and services where feasible			
Physical damage to sacred sites, cemeteries, communal water lines and utilities during clearance and construction	DED/ Road Design; CHMP; CFP	• Mark and physically barrier-fence all previously identified 'lulik' sites and graves prior to heavy machine deployment, in consultation with local and customary authorities • Require immediate, mandatory contractor repair or replacement within 24 hours of any accidentally severed community water pipes or utility links • Implement CHMP and maintain the Chance-Find Procedure during construction • Before heavy machinery, blasting or deep excavation near the horizontal cave, confirm the joint speleological/geotechnical investigation is complete and implement any resulting exclusion zone, vibration limits, structural monitoring or engineered support	Included in Contractor's CESMP budget (marking/fencing, utility-repair provisional sum)	Contractor	Supervision Consultant
Grievances arising from E&S impacts are not addressed in a timely manner	SEP, GRM Manual; LARAP	• Maintain the GRM during construction, with channels accessible at Suco level for land, labor and cultural-heritage concerns • Prioritize and track resolution of grievances from severely impacted and vulnerable households • Conduct periodic stakeholder engagement per the SEP and LARAP to surface emerging concerns early	Included in GRM operating budget	Contractors; Supervision Consultant; PMU	
Post-Construction Phase					
Decommissioning and closure of temporary	CESMP	Implement approved Decommissioning Management Plan (part of CESMP) before demobilization.	Included in Contractor budget	Contractors; Supervision Consultant	PMU

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Potential Impacts	Addressed In:	E&S Mitigation Measures	Estimated Mitigation Costs	Responsible Party	Supervising Party
construction facilities					
Operational air quality and road dust	MPW/PMU Road Maintenance Program/Manual	Maintain sealed surface and road condition; rely on available road capacity and receptor separation to limit congestion and concentrated emissions.	Included in routine road operation and maintenance.	Road Authority	PMU/relevant transport and environmental authorities
Operational water quality, sediment and spills	MPW/PMU Maintenance Program/Manual	Inspect and clear the culverts, drains and outlets; remove sediment, vegetation and waste; maintain erosion protection and revegetation; repair scour and blockages; retain spill-response capacity and inspect after major rainfall or incidents.	Included in routine maintenance and emergency-response costs.	Road Authority	Relevant environmental and water authorities
Improved access pressure on flora and fauna	MPW/PMU Maintenance Program/Manual	Keep operation and maintenance within the existing corridor; do not create forest-access routes or authorize extraction; monitor access-related pressure and coordinate with regulators.	Included in routine environmental monitoring;	Road Authority	Relevant environmental and forestry authorities
Operational road safety and induced roadside development	Road Safety & Maintenance Program	Complete road-safety audits before opening and after initial operation; monitor crashes and near misses; correct hotspots; maintain drainage, slopes, vegetation and safety assets; coordinate land-use and roadside management.	Included in road-safety and maintenance budgets.	Road Authority	Transport, traffic and local authorities
Design fails to secure access/safety benefits for vulnerable road users	ESMP; Detailed Design	• Incorporate sidewalks/shoulders, signage, lighting at settlement/school/market sections, and accessibility ramps at intersections into the final detailed design • Monitor socioeconomic and vulnerability condition in the corridor Sucos post-completion as an indicator of realized access benefits, disaggregated by gender	Included in detailed design/civil works BoQ (universal-access features)	PMU; Design Consultant	PMU; Supervision Consultant
Unequal distribution of operation-phase economic benefits across sucos along the corridor	SEP; municipal development planning	• Support community-based enterprise development along the corridor, in coordination with relevant government • Ensure feeder-track and footpath connections from outlying Aldeias to the upgraded road are considered in complementary local infrastructure planning	To be programmed under PMU/Municipality post-completion community development budget	PMU; Municipality	PMU

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Annex 2.Environmental and Social Monitoring Plan

TLBRP2 Pre-Construction Monitoring Plan

Impact Area	Monitoring Parameters	Frequency/Responsibility
Social disruption from land acquisition procedures and early labor influx	• GRM records • Community/Suco-level consultation materials, minutes, and feedback • Labor influx monitoring, including local & vulnerable group hire ratio	• Prior to and during the labor influx, land verification and land acquisition process • Supervision Consultant/PMU •
Physical/economic displacement	LARAP/compensation completion reports; community/Suco-level consultation materials, minutes, and feedback	• Prior to civil works • Supervision Consultant/PMU
Cultural heritage and sacred sites	Investigation reports; updated design that considers mitigation measures; minutes of stakeholder consultation; clearance from relevant authorities; Chance-Find records; walkover sign-off records	• Before detailed-design approval and relevant high-risk activity and ongoing during clearance • Supervision Consultant/PMU
Disproportionate adverse impacts on vulnerable and marginalized groups	LARAP with vulnerability data; community/Suco-level consultation materials, minutes, and feedback that accommodate vulnerable group needs; Vulnerability screening register	• Prior to DMS/LARAP finalization • PMU Social Safeguards/Gender Specialist
Baseline verification and design risk reduction	• Verification completed for spoil sites, water sources, noise/air receptors, biodiversity, temporary facilities and cultural values; • Findings incorporated into drawings, quantities, specifications and method constraints; • Unresolved hold points recorded.	• Before detailed-design approval and relevant high-risk activity • PMU and Design Team, verified by Supervision Consultant
Ancillary sites, materials and supply chain	• Sites and suppliers approved and licensed; • Lawful land access and capacity confirmed; • Stability, biodiversity, heritage, water demand, pollution and haul-route risks screened; • Weed controls and rehabilitation plans in place.	• Before approval or use, then monthly • Contractor, verified by PMU and Supervision Consultant
Utilities and community infrastructure	• Utility plans and field locations verified • Protection/relocation plans approved • Users notified • Number and duration of interruptions • Accidental strikes, response time and restoration status.	• Before excavation and weekly during affected works • Contractor and utility providers, supervised by PMU and Supervision Consultant.
Contractor mobilization readiness	• CESMP and site-specific plans approved • Qualified ESHS staff mobilized • Worker inductions complete • Grievance and emergency channels tested • Permits and readiness hold points closed.	• Once before site establishment and before each high-risk activity • Contractor, verified by PMU and Supervision Consultant.

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TLBRP2 Construction Monitoring Plan

Impact Area	Monitoring Parameters	Frequency/Responsibility
Vegetation removal and modified habitat	• Approved clearing footprint • Area cleared • Small and large trees removed • Unauthorized clearing incidents • Pre-clearance checks • Topsoil salvage; area stabilized/revegetated and survival of plantings • Invasive species observations.	• Before clearing, daily during clearing and monthly during rehabilitation • Contractor, supervised by PMU and Supervision Consultant.
Slope instability, landslide, rockfall and erosion	• Geotechnical verification • Compliance with staged cutting, support, compaction and drainage • Rainfall/movement thresholds • Slope condition, cracks and erosion • Post-rain inspections • Exclusion zones and permanent protection completed.	• Daily at active slopes, after heavy rain and before opening; • Contractor geotechnical/OHS staff, verified by Design Team and Supervision Consultant.
Surplus material and spoil disposal	• Material balance updated • Volumes generated, reused and disposed • Approved site capacity • Source-to-destination records • Compaction, stable profiling, drainage protection, erosion condition and progressive rehabilitation.	• Weekly during earthworks and monthly until closure • Contractor, verified by PMU and Supervision Consultant.
Surface-water quality, hydrology and community water supply	• Turbidity and visible pollution upstream/downstream • pH and hydrocarbons where relevant • Sediment-control condition • Flow-path changes • Continuity of community supply • Complaints, incidents and corrective actions.	• (a) Baseline before works; (b) weekly at active crossings; (c) during/after significant rain and (d) after incidents • Contractor, supervised by PMU, Supervision Consultant and water authorities.
Dust and combustion emissions	• Visible dust at sensitive receptors • Water application, truck covering and speed compliance • Plant maintenance and idling • Open-burning incidents • Complaints and targeted particulate results were triggered.	• Daily visual checks, weekly records review and monitoring during dry/windy conditions or complaints • Contractor, verified by Supervision Consultant.
Haulage, stockpiles, crushing and batching—community safety	• Approved siting and separation • Fencing and access control • Warning signs • Internal traffic controls • Stockpile stability • Dust/noise controls • Haul-route and delivery-hour compliance • Community complaints and joint inspections.	• Before commissioning, then daily operational checks and monthly audits • Contractor, supervised by PMU and Supervision Consultant.

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Impact Area	Monitoring Parameters	Frequency/Responsibility
Noise and vibration	• Work hours and advance notices • Equipment silencers/barriers • Noise at sensitive receptors against applicable limits or 3 dB(A) above background • Vibration observations • Complaints and corrective actions.	• Baseline before works; during high-noise activities and following complaints; • Contractor, verified by Supervision Consultant.
Waste, hazardous materials and spills	• Waste and hazardous-material inventories • Segregation, labels and secure storage • Authorized transport/disposal records • Secondary containment and spill-kit condition • Spills, response time, contaminated soil management and close-out.	• Weekly inspections and immediately after any spill • Contractor, verified by PMU and Supervision Consultant.
Borrow areas, quarries and temporary facilities	• Site screening, land access and permits • Approved layout • Drainage, erosion, dust, noise, traffic, hazardous-material, worker-welfare and security controls • Extraction/use within approved bounds • Rehabilitation and closure progress.	• Before use, monthly during operation and at closure • Contractor, verified by PMU, Supervision Consultant and permitting authorities.
Construction traffic and community road safety	• Approved routes, delivery windows and speed compliance • Signs, barriers, flaggers and pedestrian routes • Driver licenses and vehicle checks • School/market controls; crashes, near misses, complaints and road damage.	• Daily at active work zones, weekly route inspections and after incidents • Contractor, supervised by PMU, Supervision Consultant and road/Suco authorities.
Occupational health and safety	• Inductions and competency records • Task risk assessments, permits and method statements • PPE and plant–pedestrian separation • Welfare, first aid and rescue readiness • Inspections, stop-work actions, incidents, lost-time injuries and corrective-action closure.	• Daily supervision, weekly formal inspection and immediate incident reporting • Contractor OHS team, verified by PMU and Supervision Consultant.
Labor influx and community health/safety	• Camp and labor inspection reports • Worker accommodation/welfare conditions reports • OHS incidents/accident notifications and reports (per LMP) • Minutes and documentation of communicable disease awareness and prevention programs • GRM community feedback	• Daily supervision, weekly/ monthly formal inspection and immediate incident reporting • Contractor supervised by Supervision Consultant, PMU
Gender-based violence/ SEA/SH	• Implementation status of the GBV/SEA/SH Action Plan • SEA/SH training courses delivered and their documentation • Percentage of workers who have signed up and attended CoC training • SEA/SH grievances referred to Service Providers and time taken to resolve.	• Daily supervision, weekly/ monthly formal report and immediate incident reporting • Contractor, Supervision Consultant, PMU Gender Specialist/GRM Focal Point

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Impact Area	Monitoring Parameters	Frequency/Responsibility
Temporary access restriction to basic services, farmland, gardens, and roadside trading points	• GRM access-related complaints • Minutes of stakeholder consultation • Communication materials and disclosure documentation of advance notice • Access-track completion	✓ Throughout construction process, monthly formal report ✓ Contractor, Supervision Consultant, PMU
Inequitable distribution of construction employment/business benefits	• Local and vulnerable group-hire ratio • Recruitment records disaggregated by sex and Suco • Number and type of workers employed (local vs. non-local), per LMP reporting	• During recruitment process, monthly formal report • Contractor, supervised by Supervision Consultant, PMU •
Physical damage to sacred sites, cemeteries, communal water lines, and utilities	• Chance-Find records • Minutes of stakeholder consultation • Clearance from relevant authorities • Utility-repair turnaround time	• Throughout construction process, monthly formal report • Contractor, supervised by Supervision Consultant, PMU
Grievance redress	• GRM case log (Section-level logbooks and central grievance spreadsheet) • Resolution against GRM timelines • Grievance nature, type and status per the grievances track sheet and reporting template in the GRM Manual.	• Monthly GRM data collation; quarterly ESMP implementation progress report • Contractor, PMU GRM Focal Point/Supervision Consultant

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TLBRP2 Post-Construction Monitoring Plan

Impact Area	Monitoring Parameters	Frequency/Responsibility
Decommissioning and closure of temporary construction facilities	• Worker camps, batching and crushing plants, storage areas, workshops, borrow areas, quarries, spoil sites and access tracks closed in accordance with approved decommissioning plans • Structures, equipment, waste and hazardous materials removed • Contaminated soil remediated • Drainage restored • Disturbed land regraded and revegetated • Landowner acceptance, permits and outstanding grievances closed • Rehabilitation survival and erosion stability verified.	• Before demobilization, at handover, quarterly during the defects-liability period and after the first wet season • Contractor, verified by PMU and Supervision Consultant with landowners and relevant environmental/local authorities.
Operational air quality and road dust	• Sealed-surface condition • Visible dust • Traffic congestion at sensitive locations • Air-quality complaints • Targeted particulate or emissions checks where deterioration is suspected.	• Quarterly in the first year, then during routine maintenance and after complaints • Road Authority, overseen by relevant transport/environmental authorities.
Operational water quality, sediment and spills	• Culvert, drain and outlet condition • Sediment, vegetation and waste accumulation • Scour and erosion • Revegetation condition • Spill-response readiness • Receiving-water/community-source condition after major rain or incidents.	• Before and after each wet season, after major rainfall and after incidents • Road Authority, overseen by environmental and water authorities.
Access-related pressure on flora and fauna	• Operation/maintenance remains within corridor • Unauthorized access tracks or extraction • Vegetation loss, fauna incidents and invasive species; referrals and regulatory follow-up.	• Six-monthly and during maintenance inspections • Road Authority, overseen by environmental and forestry authorities.
Operational road safety and induced roadside development	• Pre-opening and post-opening audit actions • Crashes, near misses and hotspots • Speed and pedestrian risks near schools, markets and settlements • Safety-asset, drainage, slope and vegetation condition • Unsafe stopping, trading or encroachment.	• Before opening, at 3 and 12 months, then annually and after serious incidents • Road Authority with transport, traffic and local authorities.
Design fails to secure access/safety benefits for vulnerable road users	• Presence and condition of pedestrian infrastructure, signage, lighting and accessibility ramps at school, market and settlement • Documentation of improvement in socioeconomic or vulnerable groups' condition post-construction • Post-completion community feedback session	• Post-opening design/accessibility audit • Contractor, Road Authority/PMU, PMU Social Safeguards/Gender Specialist

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Impact Area	Monitoring Parameters	Frequency/Responsibility
Unequal distribution of operation-phase economic benefits across Sucos along the corridor	• Status of feeder-track and footpath connections from outlying Aldeias to the upgraded road • Community-based development post-construction (if any) • Post-completion community feedback session	• Annually for the first years post-opening, then as part of routine socioeconomic monitoring • PMU/Supervision Consultant, coordinating with relevant government agencies

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Annex 3. Sample Weekly CESMP Inspection Checklist

PROJECT:

DATE:

PREPARED BY:

DISTRIBUTION LIST:

IMPLEMENTING AGENCY:

CONTRACTOR:

SUPERVISION CONSULTANT

Inspection Participants: (insert names and positions)

CESMP Items (edit as necessary based on approved CESMP)	Applicable		Compliance		Issues	Status (R)/(O)	Action Required/Taken	Target/ Actual Date
	Yes	No	Yes	No				
1. Mitigation & Management Measures: Construction Phase								
General: The contractor is undertaking weekly monitoring and reporting using a monitoring form approved by Supervision Engineer in CESMP.								

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CESMP Items (edit as necessary based on approved CESMP)	Applicable		Compliance		Issues	Status (R)/(O)	Action Required/Taken	Target/ Actual Date
	Yes	No	Yes	No				
Solid and Hazardous Waste: - Approved Solid Waste Management Plan effectively implemented - Waste collection at laydown area is secure, well signed and clean - Hazardous waste is stored according to SWMP - Good housekeeping around project sites and workers accommodation - All hazardous waste is disposed of offshore - Contaminants of Concern (COC) documentation in place and reviewed								

CESMP Items (edit as necessary based on approved CESMP)	Applicable		Compliance		Issues	Status (R)/(O)	Action Required/Taken	Target/ Actual Date
	Yes	No	Yes	No				

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Waste Accumulation and Disposal Agreements: - Good housekeeping around the work sites - Waste collected in defined area on impermeable ground or containers - Separation of waste into (i) Recyclable waste (i.e. certain plastics, metals, rubber etc. that can be recycled); (ii) Organic biodegradable waste (i.e. waste that will decay / break down in a reasonable amount of time, such as green waste, food waste; (iii) Inorganic non-recyclable waste (i.e. waste that cannot decompose / break down and which cannot be recycled) and, (iv) Hazardous waste (i.e. asbestos, waste oil etc.) - Hazardous waste stored in safe and appropriate manner. - Waste management plan in place and operating for proper disposal							
Soil and Water Pollution: - Appropriate spill response plan/kit in place for waste area - No visible spills on soil or uncovered ground - Drainage and soakage systems clear and fit for purpose							

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CESMP Items (edit as necessary based on approved CESMP)	Applicable		Compliance		Issues	Status (R)/(O)	Action Required/Taken	Target/ Actual Date
	Yes	No	Yes	No				
Dust and Materials Transport: - Stockpiles covered or kept wet when not in use - Visual inspection of ambient dust conditions on site and at nearby sensitive locations - Truck transports are covered - No evidence of aggregate spills on haulage route								
Noise: - Workers wearing ear protection as required - Noise level maximum of 45dB between 2200-0700 - No complaints received relating to noise								
Air Pollution: - Equipment operating without excessive emissions - Bitumen and asphalt plant emissions move away from nearby communities								
Fuel and Oil Storage: - Substances stored in self-bunded vessels or within bund on impermeable surface - Spill kit complete and accessible - Spill training completed - No evidence of spills on the ground								

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CESMP Items (edit as necessary based on approved CESMP)	Applicable		Compliance		Issues	Status (R)/(O)	Action Required/Taken	Target/ Actual Date
	Yes	No	Yes	No				
OHS - Workers have access to and are using appropriate, PPE for the task. - All workers have undergone appropriate OHS training. - Proper briefing of staff before undertaking work activities.								
TMP Implementation: - Traffic Management Plan (TMP) under effective implementation								
Community and Local Business Consultation: - Public signage of complaints procedure - Signs and fences restrict or direct pedestrians and public where appropriate.								
Materials Supply: - Quarry establishment and operations in fully compliance with ESMP - All quarries licensed to supply materials - All imported materials with appropriate biosecurity clearances								

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CESMP Items (edit as necessary based on approved CESMP)	Applicable		Compliance		Issues	Status (R)/(O)	Action Required/Taken	Target/ Actual Date
	Yes	No	Yes	No				
Laydown Area: - Laydown areas established on pre-approved sites - Laydown areas dust levels managed efficiently - Traffic management plan correctly implemented at laydown site - Water run off management systems operating correctly - Dust management effectively implemented - PPE present and correctly used - Refuelling occurring over drip trays in dedicated areas - No stockpiling within 100m of waterways Bunding is functional at a stockpile site								
Workers Camp (if applicable): - Camp established in accordance with Code of Practice in ESMP Annex G. - Septic system cleaned and fully operational. - Waste stored in an appropriate location in a clean and tidy manner, segregated by waste type. - Workers living and recreational areas clean and properly equipped. - OHS, HIV/AIDS, GBV, Human Trafficking, CAE and other information available								

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CESMP Items (edit as necessary based on approved CESMP)	Applicable		Compliance		Issues	Status (R)/(O)	Action Required/Taken	Target/ Actual Date
	Yes	No	Yes	No				
Monitoring - Weekly safeguards compliance report completed								

Status: (R) Resolved Issues, (O) Ongoing Issues

Notes:

Required Actions:

Environmental Specialist: Signed: Date:

Photos (attach as appropriate)

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Annex 4. Guidelines for Preparing Solid Waste Management Plan

This annex provides project-specific guidelines for managing solid and related construction waste generated during preparation, construction, operation, and maintenance of the Hatubuilico Junction–Ramelau Sanctuary Road under TLBRP2. It applies to the Contractor, subcontractors, the Supervision Consultant, the PMU, workers, suppliers, and service providers involved in construction camps, laydown areas, workshops, quarries, borrow pits, spoil areas, stockpiles, haul routes, drainage works, slope stabilization, road surfacing, and maintenance activities.

Purpose and Objectives

The purpose of these guidelines is to prevent pollution, protect community health and safety, maintain landscape and cultural values around Mount Ramelau, and ensure that waste generated by the Project is reduced, segregated, stored, transported, reused, recycled, treated, and disposed of in a safe and controlled manner. The objectives are to avoid uncontrolled dumping and burning, prevent waste from entering waterways and drainage systems, protect springs and community water sources, prevent harm to livestock and wildlife, reduce visitor and worker waste pressure near the sanctuary access area, and ensure compliance with Timor-Leste's environmental requirements, ESS3, ESS4, ESS6, and the World Bank Group EHS Guidelines.

Project Waste Streams

Waste stream	Likely sources	Main risks	Required management approach
Domestic and worker camp waste	Food waste, packaging, bottles, cans, paper, plastics, and general refuse from camps, offices, rest areas, and work fronts.	Odor, pests, litter, blocked drains, livestock ingestion, visual impacts, health risks, and attraction of dogs or other animals.	Segregate at source, store in covered bins, remove regularly, prohibit burning and dumping, and dispose at approved locations.
Construction debris	Concrete fragments, asphalt, broken culverts, timber, formwork, scrap metal, geotextile offcuts, packaging, and damaged materials.	Unsafe work areas, blocked drainage, visual impact, land contamination, and disposal on community or sensitive land.	Reuse suitable materials where safe, segregate recyclable metals, stockpile in designated areas, and remove to approved disposal or reuse sites.
Spoil and excavated material	Cut slopes, drainage channels, culvert works, retaining structures, slope stabilization, camps, quarries, borrow pits, and access tracks.	Erosion, sedimentation, slope failure, burial of vegetation, impacts on farms, springs, watercourses, sacred sites, and community access.	Prioritize reuse in works, use approved spoil areas only, prohibit side-casting on steep slopes, stabilize and revegetate disposal sites.
Vegetation and organic waste	Clearing of shrubs, grasses, branches, non-protected roadside vegetation, and camp or worksite maintenance.	Fire risk, habitat disturbance, spread of invasive species, blocked drains, and loss of culturally valued vegetation.	Minimize clearing, segregate from contaminated waste, mulch or reuse where appropriate, and prohibit burning unless specifically approved by authorities.

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Waste stream	Likely sources	Main risks	Required management approach
Hazardous waste	Used oil, oily rags, filters, fuel residues, batteries, paint containers, bitumen residues, solvents, chemical containers, contaminated soil, and spill cleanup materials.	Soil and water contamination, fire, worker exposure, community exposure, and harm to livestock or wildlife.	Store separately in labelled, sealed, bunded areas; keep records; use licensed or approved handlers where available; and never mix with general waste.
Sanitation waste	Portable toilets, temporary worker facilities, wastewater from washing areas, and camp sanitation systems.	Public health impacts, contamination of springs and streams, odor, vectors, and community complaints.	Provide adequate toilets and washing facilities, locate away from water sources, maintain regularly, and dispose of sludge or wastewater only through approved arrangements.
Visitor and roadside litter induced by improved access	Roadside stopping points, viewpoints, pilgrimage routes, sanctuary access points, worker-community interface areas, and informal vendors.	Degradation of cultural landscape values, blocked drains, wildlife and livestock ingestion, community nuisance, and reputational impacts.	Coordinate with local authorities and sanctuary stakeholders, provide temporary bins during construction where needed, remove litter from work areas, and support awareness messages.

Waste Management Hierarchy

The Contractor will apply the waste hierarchy in the following order: avoid waste generation through careful planning and procurement; reduce waste through accurate material estimates and controlled storage; reuse suitable excavated material, timber, formwork, containers, and packaging where safe; recycle scrap metal, clean plastics, cardboard, and other recyclable materials where feasible; recover usable material from spoil and demolition waste; and dispose of residual waste only at locations approved by the PMU, supervision consultant, relevant authorities, and landholders where applicable.

Roles and Responsibilities

Party	Responsibilities
PMU	Ensure that these guidelines are included in bidding documents and contracts; approve waste management arrangements before mobilization; coordinate with relevant authorities; review monitoring reports; and require corrective actions for non-compliance.
Supervision Consultant	Review and clear the Contractor's Waste Management Plan as part of the CESMP; inspect waste storage, handling, transport, spoil areas, and disposal records; verify corrective actions; and report non-compliance to the PMU.
Contractor	Prepare and implement a project-specific Waste Management Plan; provide bins, storage areas, signage, training, PPE, spill kits, transport and disposal arrangements; keep waste records; manage subcontractors; and restore waste handling areas before demobilization.
Workers	Use designated bins and toilets, avoid littering, avoid burning or dumping waste, report spills or waste hazards, and follow toolbox talk instructions and site signage.

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Contractor Waste Management Plan Requirements

Before mobilization, the Contractor must prepare a Waste Management Plan as part of the CESMP. The plan must identify expected waste types and estimated quantities; map waste generation points, temporary storage areas, spoil areas, sanitation facilities, fueling areas, workshops, laydown areas, and haul routes; identify approved disposal or reuse locations; describe segregation, labelling, storage, handling, transport, and disposal procedures; assign responsible personnel; include training and toolbox talk requirements; define emergency spill response procedures; and provide recordkeeping formats for waste quantities, transport, reuse, recycling, and disposal.

Site Controls and Good Housekeeping

- Provide clearly labelled containers for general waste, recyclables, organic waste, construction waste, and hazardous waste at camps, workshops, stockpile areas, and active work fronts.
- Keep waste containers covered, stable, and protected from rain, wind, animals, and unauthorized access.
- Locate storage areas away from springs, streams, drainage channels, steep slopes, houses, schools, health posts, religious areas, sacred sites, and sensitive habitats.
- Inspect waste storage areas daily and remove accumulated waste before bins overflow.
- Prohibit open dumping, roadside dumping, burial of waste, burning of waste, disposal into drains or waterways, and disposal on community land without documented approval.
- Keep work fronts free of loose packaging, offcuts, metal scraps, nails, wire, food waste, and other hazards.
- Provide worker induction and regular toolbox talks on segregation, hazardous waste, spill response, sanitation, litter prevention, and community expectations.

Spoil and Excavated Material Management

Spoil and excavated material must be reused in the works where technically suitable and safe. Excess material must be placed only in approved spoil disposal areas that have been screened for land ownership, slope stability, drainage, erosion risk, biodiversity values, cultural heritage, springs, watercourses, community access, and livelihood impacts. Side-casting on steep slopes, disposal into valleys, drainage lines, streams, springs, farm plots, sacred areas, or roadside edges is prohibited. Spoil areas must be shaped, compacted where needed, drained, protected from erosion, and progressively revegetated or stabilized. Spoil disposal agreements must be documented, and final restoration must be inspected before demobilization.

Hazardous Waste and Spill Prevention

Hazardous waste must be segregated from general waste and stored in sealed, labelled containers within a secure and bunded area on an impermeable surface. Used oil, filters, batteries, solvents, bitumen residues, paint containers, chemical containers, oily rags, spill cleanup materials, and contaminated soil must not be mixed with domestic or construction waste. Fuel storage and maintenance areas must include secondary containment, spill kits, fire extinguishers, signage, and trained personnel. Any spill must be stopped, contained, cleaned up, recorded, and reported to the Supervision Consultant and PMU. Contaminated soil and cleanup materials must be treated as hazardous waste and removed to an approved location or handler where available.

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Sanitation and Wastewater from Worker Facilities

The Contractor must provide adequate toilets, handwashing facilities, potable water, and waste collection at camps and work fronts. Toilets and wastewater facilities must be located away from springs, streams, drainage channels, community water sources, houses, schools, health posts, and culturally sensitive areas. Sanitation facilities must be maintained regularly to prevent odor, vectors, leakage, and community complaints. Untreated wastewater, sludge, greywater, and wash water must not be discharged to land, drains, streams, springs, or agricultural areas unless approved treatment and disposal arrangements are in place.

Community, Visitor and Sanctuary-Related Waste

Because the road provides access to the Ramelau Sanctuary and may experience increased visitor, pilgrimage, and roadside stopping activity, the Contractor must prevent construction-related litter from contributing to existing community or visitor waste issues. Temporary waste bins may be provided at worker rest points, active work fronts, and designated stopping locations where needed. Waste bins must be removed or handed over through an agreed arrangement before demobilization. The Contractor will coordinate with local authorities, sanctuary stakeholders, *suco* and *aldeia* representatives, and the PMU to communicate "no littering" expectations, keep construction areas clean, and avoid placing waste facilities in culturally sensitive or visually prominent locations.

Waste Management Checklist for Contractor Mobilization

- Waste Management Plan prepared, reviewed, and cleared as part of the CESMP.
- Approved disposal and spoil locations identified, screened, documented, and mapped.
- Waste bins, signage, storage areas, spill kits, PPE, and fire extinguishers available before work starts.
- Hazardous waste storage area established with containment and labels.
- Worker toilets and handwashing facilities installed and maintained.
- Waste collection and transport arrangements confirmed, including records or receipts.
- Training and toolbox talks completed for all workers and subcontractors.
- No-go areas, springs, drainage lines, sacred sites, steep slopes, and community access points marked or communicated.
- Community notification and GRM contact information disclosed before construction.
- Inspection, reporting, and corrective action templates prepared.

Prohibited Practices

- Open dumping, roadside dumping, or disposal in valleys, drains, streams, springs, wetlands, agricultural land, sacred sites, or community areas.
- Open burning of domestic, plastic, rubber, hazardous, oily, bituminous, or mixed waste.
- Mixing hazardous waste with domestic or construction waste.
- Side-casting spoil on steep slopes or near drainage lines without approval and stabilization.
- Disposal of concrete wash water, oily water, greywater, sludge, chemicals, fuel, or lubricants to land, drains, watercourses, or community water-source areas.

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- Use of unapproved disposal sites, quarries, borrow pits, or land parcels.
- Leaving waste, debris, scrap, temporary bins, oil drums, stockpile residues, or contaminated soil on site after demobilization.

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Annex 5. Guidelines for Preparing Quarry Management Plan (QuMP)

1. Objective

The objective of this Sub-plan is to set out good international industry practice requirements for the selection, approval, development, operation, monitoring and closure of quarries. The Sub-plan supports compliance with applicable Timor-Leste laws and permits; the World Bank Environmental and Social Framework (ESF), including relevant Environmental and Social Standards; and the World Bank Group Environmental, Health and Safety Guidelines, including the General EHS Guidelines and the EHS Guidelines for Construction Materials Extraction. It is intended to prevent, minimize, mitigate and monitor adverse risks and impacts to workers, communities, land, water, biodiversity, cultural heritage and road users.

The Contractor shall apply a mitigation hierarchy of avoidance, minimization, restoration and, where residual impacts remain, appropriate offset or compensatory measures as required by the project instruments. Where Timor-Leste requirements differ from World Bank Group EHS Guideline levels or measures, the Contractor shall apply the more stringent requirement unless a site-specific justification acceptable to the Employer, Engineer and relevant authority demonstrates that an alternative is protective of human health and the environment.

2. Planning and Design

Planning and design shall start with screening of all potential quarry and borrow areas, including existing licensed commercial sources and any new project-specific sites. The screening shall consider legal status, land ownership and use, proximity to settlements and sensitive receptors, access routes, slope stability, hydrology, flood risk, biodiversity values, cultural heritage, cumulative impacts, material quality, haulage distance, greenhouse gas and dust implications, community health and safety, and the feasibility of progressive rehabilitation. Preference shall be given to legally permitted existing sources that meet project technical, environmental, social, occupational health and safety, and labor requirements.

2.1 Quarry Site Screening and Selection

During project planning, potential quarry sites shall be identified through a documented alternatives assessment. The assessment shall be disclosed and discussed through meaningful consultation with affected communities, landholders, local authorities and relevant government agencies in Timor-Leste. Consultation shall be culturally appropriate, inclusive of women and vulnerable groups, and supported by clear information on expected impacts, mitigation measures, grievance channels, access arrangements, blasting or crushing activities, traffic risks, and proposed closure and restoration outcomes.

2.2 Land Access, Acquisition and Compensation

The Contractor shall obtain written evidence of land access, leases, compensation, easements and any required permits before any clearing, extraction, access road construction or mobilization of plant. Land access shall be based on lawful, transparent and voluntary agreements, free of coercion, and shall be consistent with the project's land acquisition, resettlement and livelihood restoration instruments where applicable. Agreements shall identify the parties, land boundaries, term, payment

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or compensation arrangements, restoration obligations, grievance mechanism, and confirmation that the landholder understood and accepted the terms. Documentation shall be reviewed by the Engineer and included in the CESMP and Quarry Management Plan.

The Design/Supervision Engineer/Consultant shall identify potential quarry sites that may be used for the Project and show each site on drawings prepared at an appropriate scale. The drawings shall clearly indicate site boundaries, land ownership or use, access arrangements, nearby settlements and sensitive receptors, watercourses, and other relevant physical features. The plans shall be made available and discussed during public consultation in accordance with the Project Stakeholder Engagement Plan.

The Quarry Management Plan shall include a permit register covering environmental approvals, extraction licenses, water abstraction or discharge permits, blasting or explosives approvals, traffic permissions, waste management requirements, and any other statutory approvals required in Timor-Leste. No quarry shall be opened, expanded or materially changed until the relevant permits and the Engineer's approval have been obtained.

2.3 Site Plans and Design Requirements

Site plans for quarry development shall be included in the tender drawings and shall define the contractual requirements for quarry development, operation, environmental management, occupational health and safety, community health and safety, and rehabilitation. The following design requirements shall apply:

- No quarry boundary shall be located within 500 meters of a public area, town or village, or within 300 meters of an isolated dwelling, unless a site-specific risk assessment demonstrates that impacts can be avoided or adequately mitigated and the arrangement is approved by the Engineer and relevant authority.
- The Designer shall include site plans for potential quarry sites in the tender documents. These plans shall show existing contours, access roads, natural watercourses, drainage features, nearby sensitive receptors and other relevant topographical features.
- The area required for quarry operation shall be based on the estimated volume of aggregate to be extracted, the proposed extraction method, the duration of operation, and the space required for safe and environmentally sound activities. The site layout shall provide sufficient area for overburden and topsoil stockpiles, crushing and screening plant, aggregate stockpiles, internal access roads, stormwater cut-off drains, sediment retention ponds, fuel and chemical storage, waste management areas, emergency access, and worker welfare facilities.

3. Construction, Operation and Management

3.1 Quarry Management Plan

Before commencing any physical works on site, the Contractor shall prepare and obtain approval for a Quarry Management Plan. The Plan shall be approved by the Engineer and relevant Timor-Leste authority before quarry development, extraction, crushing, screening or haulage activities commence. The Quarry Management Plan shall address the requirements set out in Section 2.3 and the operational, environmental, social, health and safety controls listed below.

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- All operations shall comply with applicable laws, regulations and permit conditions of Timor-Leste, together with the project ESMP, CESMP, World Bank Environmental and Social Standards, and relevant World Bank Group EHS Guidelines.
- Show the extent of overburden stripping and the stockpiling of same for later site restoration.
- Show the details and location of surface water drainage from the quarry site and the silt retention pond that will be constructed to settle silt and soil contaminated water prior to its discharge to a natural water course.
- Show the location, capacity and design of catch drains required to intercept overland surface-water flows and prevent uncontrolled discharge into the quarry area.
- Describe the safety controls to be implemented, including exclusion zones, signage, edge protection, bench and face stability measures, vehicle and pedestrian segregation, emergency response arrangements, and controls for blasting or other high-risk activities.
- Show the location and layout of site facilities, including the guardhouse, worker welfare facilities, sanitation facilities, potable-water points, first-aid station, emergency assembly area, parking, and any other temporary or permanent facilities.
- Show the location, footprint and drainage arrangements for aggregate stockpiles, including controls to manage dust, runoff, sediment transport and material segregation.
- List the plant and equipment to be used for quarry development and operation, including equipment capacity, maintenance arrangements, emissions and noise controls, and any certification or inspection requirements.
- Show the site of the proposed magazine for the storage of explosives.
- Include a risk assessment and method statements for drilling, blasting, crushing, screening, haulage, working at heights, confined or isolated work, traffic management, fuel and chemical storage, emergency response, and interaction with nearby communities and road users.
- Include environmental controls for erosion and sediment management, stormwater diversion, effluent and discharge quality, dust suppression, noise and vibration, spill prevention, hazardous materials, waste segregation and disposal, sanitation, invasive species prevention, and protection of watercourses and groundwater.
- Include monitoring, inspection and reporting arrangements, including responsible personnel, monitoring locations, parameters, frequency, acceptance criteria, corrective action procedures, records to be retained, and reporting to the Engineer, Employer and relevant authorities.

No physical works shall commence for quarry development or operation until the Quarry Management Plan has been submitted to, reviewed by and approved by the Engineer. Thereafter, all quarry operations shall remain the Contractor's responsibility and shall be carried out in accordance with the approved Quarry Management Plan, the CESMP, applicable permits and the requirements of this Sub-plan.

3.2 Occupational Health and Safety

The following provisions shall be made in the operation of any quarry for the safety of all employees or persons on site:

- A daily register is to be maintained identifying all personnel who are engaged in or about the quarry.

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- All persons engaged in the operation of the quarry shall be trained and have sufficient knowledge of and experience in the type of operation in which they are engaged.
- All persons engaged in the operation of the quarry shall be adequately supervised.
- Approved lighting shall be provided in inside working places where natural lighting is inadequate to provide safe working conditions.
- All personnel engaged in quarry operations shall wear a protective helmet of approved type at all times when on the quarry site.
- All personnel shall wear protective footwear while engaged in quarry operations.
- All employees engaged in operations on a quarry face at a height greater than 1.5 meters above the level of the quarry floor or bench floor shall be attached at all times to a properly secured safety rope by means of a safety belt.
- All persons whose duty it is to attend to moving machinery in or about any quarry shall wear close fitting and close fastened garments. Their hair shall be cut short or securely fixed and confined close to their head.
- All boilers, compressors, engines, gears, crushing and screening equipment and all moving parts of machinery shall be kept in a safe condition. Every flywheel and exposed moving parts of machinery shall be fitted with safety screens or safety fenced as appropriate.
- All elevated platforms, walkways and ladders shall be provided with adequate hand or safety rails or cages.
- Machinery shall not be cleaned manually while it is in motion nor oiled or greased while in motion.

If any safety measure required under Section 3.2 is absent, ineffective or not being implemented, the Engineer may direct the Contractor to suspend the affected quarry activity until the non-compliance has been corrected and verified. Corrective actions shall be recorded in the inspection register and reported in accordance with the Quarry Management Plan.

3.3 Community Health, Safety and Stakeholder Engagement

The Contractor shall manage community health and safety risks associated with quarrying, material transport and access roads. Controls shall include public exclusion zones, fencing or bunding where needed, warning signage in local languages, speed controls and traffic management on haul routes, safe pedestrian access, notification of blasting and other high-risk activities, dust and noise controls near sensitive receptors, and a functioning grievance mechanism accessible to affected communities. Community grievances and corrective actions shall be logged, investigated and reported in accordance with the project Stakeholder Engagement Plan.

3.4 First Aid and Emergency Preparedness

Each quarry shall be equipped with first-aid facilities and emergency response equipment appropriate to the nature and scale of the activities. As a minimum, the following shall be provided and maintained in good condition:

- A suitably constructed stretcher with a warm, dry blanket.
- A first-aid box equipped to a standard acceptable to the Ministry of Health.

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The quarry manager shall at least once every working week personally inspect the first-aid equipment to ensure that it complies with the requirements of this specification. Any supplies used from the first-aid box shall be replaced forthwith.

A person trained in first aid to the injured shall be available at the quarry during all operational periods of whatever nature.

3.5 Worker Health, Welfare and Sanitation

Each quarry shall provide sufficient toilets, handwashing facilities and urinals, where appropriate, for the number of workers and visitors on site. Facilities shall be maintained in a clean, safe and hygienic condition and shall be accessible during working hours in accordance with Section 3.5 and the CESMP.

Each quarry shall provide a safe and reliable supply of potable water sufficient for workers and visitors. Where work areas are remote from the main water supply point, potable water shall be provided in clean, covered and clearly identified containers.

Washing facilities shall be provided, maintained in a clean and serviceable condition, and located so they are readily accessible to persons working in or around the quarry. Wastewater from washing and sanitation facilities shall be managed to avoid contamination of soil, surface water and groundwater.

3.6 Quarry Manager and Qualified Personnel

A manager who is experienced in all aspects of quarry operation and in particular safety procedures shall control every quarry. The manager shall be personally responsible for ensuring that all safety facilities are available and that safety procedures are followed.

The contractor shall nominate an experienced quarry manager in the submission of the tender for the works. The quarry manager shall have a recognized current “A” grade quarry manager’s surface certificate, and a recognized current quarry shot firer’s certificate.

The quarry manager’s duties shall include:

- Daily, within two hours immediately before the commencement of the first working shift of the day in any part of the quarry, inspect every working place and travelling road, and all adjacent places from which danger might arise, and shall forthwith make a true report of the inspection in a record book kept for the purpose at the quarry. The record book shall be accessible to the engineer and the persons employed in or about the quarry.
- At least once in every 24 hours examine the state of the safety appliances or gear connected with quarrying operations in the quarry and shall record the examination in the record book.
- Once in each week carefully examine the buildings, machinery, faces, benches, and all working places used in the quarrying operations, and shall forthwith after every such examination record in writing in the record book his opinion as to their condition and safety and as to any alterations or repairs required to ensure greater safety of the persons employed in the working of the quarry. The manager shall then ensure that any such alterations or repairs are carried out.

3.7 Vegetation Clearance and Biodiversity Protection

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Vegetation shall be stripped from the proposed quarry development area. Before stripping any vegetation, a survey shall be undertaken to determine the presence of any rare plant species. All necessary steps shall be taken to save plants classified as important. Care shall be taken to avoid damage to any vegetation outside the defined quarry area. On no account shall burning of vegetation be permitted.

3.8 Overburden Stripping, Topsoil Management and Stockpiling

Overburden stripped from any proposed quarry area shall be stockpiled clear of the quarry operation to be used for site restoration at the completion of operations. Stockpiles shall be shaped and smoothed to minimize ingress of rainwater.

3.9 Progressive Rehabilitation and Closure

- Quarry rehabilitation shall be planned before extraction begins and implemented progressively wherever practicable. The closure plan shall define final landform, drainage, slope stability, replacement of overburden and topsoil, revegetation using suitable native or locally appropriate species, removal of plant and waste, treatment of contaminated soils, safety measures for remaining faces or voids, post-closure monitoring, and handover requirements. Final closure shall be verified by the Engineer and, where required, relevant Timor-Leste authorities and landholders before demobilization is accepted.
- Surface water run-off from stockpiles shall be intercepted by perimeter drains which shall be discharged to silt retention ponds.
- Batters in overburden excavation shall be sloped to ensure they are safe and stable against failure.
- The maximum height of any batter in overburden shall be 3 meters. Any higher batter in overburden shall have an intermediate bench at least 3.5 meters in width. Such benches shall be shaped and drained.

3.10 Blasting Operations and Explosives Management

- Blasting operations shall be conducted in a manner that will not cause danger to life or property.
- All explosives shall be stored in purpose built locked magazines on a site within the quarry boundary but remote from blasting operations. Detonators shall be stored in a separate locked magazine but similarly sited.
- A blasting operations manual shall be prepared for any quarry and such manual, which shall be maintained by the quarry manager, shall stipulate procedures for at least the following:
- Operation of magazines for the storage of explosives and for the storage of detonators.
- The quantity of explosive that may be removed from a magazine at any one time.
- The procedure for quarry explosive cases.
- Persons allowed to fire shots.
- Explosives to be carried in securely covered containers.
- Tamping of explosives.
- Diameter of drill holes.
- Time when charges are to be fired.
- Detonation delay.
- Firing warnings.

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- Blasting shelters.
- Treatment of misfired charges
- Inspection of work site after each detonation by the quarry manager or an approved person appointed in writing by the quarry manager.

A person specially appointed in writing by the quarry manager for the purpose shall oversee every magazine and shall have keys to one of the locks. That person shall be responsible for the safe storage of explosives contained therein, for the distribution of explosives therefrom, and for the keeping of accurate records of stocks and issues in a book provided for the purpose. A second person, appointed by the employer shall have keys to the second lock. Both persons shall be present to unlock the magazine and note the removal of stock and ensure both locks are subsequently secured.

- Explosives shall be used in the same order as that in which they were received into the magazine.
- Naked lights shall not be introduced into a magazine or into any working place in a quarry where explosives are temporarily stored.
- Explosives shall not be taken from a magazine in quantities exceeding that required for use during one shift, and any surplus explosives shall be returned to the magazine at the end of that shift.
- No case or carton containing explosives shall be opened in the storage area of any magazine.
- Instruments made solely of wood, brass, or copper shall be used in opening cases or cartons of explosives, and the contractor shall provide and keep suitable instruments for that purpose.
- The preparation of charges and the charging, tamping, and firing of all explosive charges in or about a quarry shall be carried out under the personal supervision of the quarry manager.

Dust generation during blasting operations shall be minimized. All haul roads shall be regularly dampened by spray bars fitted to water tankers or similar systems to minimize dust generation by traffic movements. Crushers, screens and stockpiles shall be dampened by appropriate water sprays to minimize dust generation.

Rehabilitation:

A realistic Rehabilitation Plan will be developed, and rehabilitation planning shall begin as early as possible in the quarry life cycle in order to be fully effective. Once objectives are set, rehabilitation activities should be defined and performed in order to achieve these goals.

The objectives of a rehabilitation plan should be based upon the specific characteristics of the extraction site and should reflect:

- Legislative requirements
- Health and safety considerations
- Environmental and social characteristics of the quarry and surrounding area
- Biodiversity of area
- Ecosystem services provided within the site's ecological boundaries

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- Operating plan for the quarry – technical feasibility of the rehabilitation objectives will be affected by the way the quarry operates
- Status of the quarrying area of existing operating site
- Characteristics of the deposit (geology and hydrology)
- Impacts arising from operation of the site
- Post closure land use plan

Rehabilitation plans should adopt the following structure:

a. Context
b. Objectives
c. Action plans
d. Prioritized actions and schedule
e. Monitoring and evaluation
f. Rehabilitation and post-closure costs
g. Roles and responsibilities
h. Compatibility with biodiversity

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Annex 6. Guidelines for Preparing OHS Management Plan

1. Objective

The objective of this Sub-plan is to provide guidance on the:

- key principles involved in ensuring the health and safety of workers is protected;
- preparation of Health and Safety Sub-plans and associated Job Safety Analyses (JSA); and
- implementation of Health and Safety Sub-plans during project implementation.

The key reference document for this Guideline is the World Bank Group's *Environmental, Health, and Safety (EHS) Guidelines* (April 2007) together with the relevant Industry Sector EHS Guidelines available at www.ifc.org/ehsguidelines.

2. Principles

Employers must take all reasonably practicable steps to protect the health and safety of workers and provide and maintain a safe and healthy working environment. The following key principles are relevant to maintaining worker health and safety:

2. 1. Identification and assessment of hazards

Each employer must establish and maintain effective methods for:

- Systematically identifying existing and potential hazards to employees;
- Systematically identifying, at the earliest practicable time, new hazards to employees;
- Regularly assessing the extent to which a hazard poses a risk to employees.

2.2. Management of identified hazards

Each employer must apply prevention and control measures to control hazards which are identified and assessed as posing a threat to the safety, health or welfare of employees, and where practicable, the hazard shall he eliminated. The following preventive and protective measures must be implemented order of priority:

- Eliminating the hazard by removing the activity from the work process;
- Controlling the hazard at its source through engineering controls;
- Minimizing the hazard through design of safe work systems;
- Providing appropriate personal protective equipment (PPE).

The application of prevention and control measures to occupational hazards should be based on comprehensive job safety analyses (JSA). The results of these analyses should be prioritized as part of an action plan based on the likelihood and severity of the consequence of exposure to the identified hazards.

2.3. Training and supervision

Each employer must take all reasonably practicable steps to provide to employees (in appropriate languages) the necessary information, instruction, training and supervision to protect each employee's health and to manage emergencies that might reasonably be expected to arise in the course of work.

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Training and supervision extend to the correct use of PPE and providing employees with appropriate incentives to use PPE.

2.4. General duty of employees

Each employee shall:

- take all reasonable care to protect their own and fellow workers health and safety at the workplace and, as appropriate, other persons in the vicinity of the workplace;
- use PPE and other safety equipment supplied as required; and
- not use PPE or other safety equipment for any purpose not directly related to the work for which it is provided.

2.5. Protective clothing and equipment

Each employer shall:

- provide, maintain and make accessible to employees the PPE necessary to avoid injury and damage to their health;
- take all reasonably practicable steps to ensure that employees use that PPE in the circumstances for which it is provided; and
- make provision at the workplace for PPE to be cleaned and securely stored without risk of damage when not required.

The application of prevention and control measures to occupational hazards should be based on comprehensive job safety analyses (JSA). The results of these analyses should be prioritized as part of an action plan based on the likelihood and severity of the consequence of exposure to the identified hazards.

3. Design

Effective management of health and safety issues requires the inclusion of health and safety considerations during design processes in an organized, hierarchical manner that includes the following steps:

- identifying project health and safety hazards and associated risks as early as possible in the project cycle including the incorporation of health and safety considerations into the worksite selection process and construction methodologies;
- involving health and safety professionals who have the experience, competence, and training necessary to assess and manage health and safety risks;
- understanding the likelihood and magnitude of health and safety risks, based on:
- the nature of the project activities, such as whether the project will involve hazardous materials or processes;
- The potential consequences to workers if hazards are not adequately managed;
- designing and implementing risk management strategies with the objective of reducing the risk to human health;
- prioritizing strategies that eliminate the cause of the hazard at its source by selecting less hazardous materials or processes that avoid the need for health and safety controls;

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- when impact avoidance is not feasible, incorporating engineering and management controls to reduce or minimize the possibility and magnitude of undesired consequences;
- preparing workers and nearby communities to respond to accidents, including providing technical resources to effectively and safely control such events;
- Improving health and safety performance through a combination of ongoing monitoring of facility performance and effective accountability.

3.1. Job Safety Analysis

Job safety analysis (JSA) is a process involving the identification of potential health and safety hazards from a particular work activity and designing risk control measures to eliminate the hazards or reduce the risk to an acceptable level. JSAs must be undertaken for discrete project activities such that the risks can be readily identified, and appropriate risk management measures designed.

This Guideline includes a template for a JSA that must be completed and included as an attachment to the Health and Safety Sub-plan.

3. Implementation

3.1. Documentation

A Health and Safety Plan must be prepared and approved prior to any works commencing on site. The H&S Plan must demonstrate the Contractor's understanding of how to manage safety and a commitment to providing a workplace that enables all work activities to be carried out safely. The H&S Plan must detail reasonably practicable measures to eliminate or minimize risks to the health, safety and welfare of workers, contractors, visitors, and anyone else who may be affected by the operations. The H&S Plan must be prepared in accordance with the World Bank's EH&S Guidelines and the relevant country health and safety legislation.

3.2. Training and Awareness

Provisions should be made to provide health and safety orientation training to all new employees to ensure they are apprised of the basic site rules of work at / on the site and of personal protection and preventing injury to fellow employees. Training should consist of basic hazard awareness, site-specific hazards, safe work practices, and emergency procedures for fire, evacuation, and natural disaster, as appropriate.

Visitors to worksites must be provided with a site induction prior to entering and must be escorted at all times while on site. This induction must include details of site hazards, provision of necessary PPE and emergency procedures. Visitors are not permitted to access to areas where hazardous conditions or substances may be present, unless appropriately inducted.

3.3. Personal Protective Equipment (PPE)

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Personal Protective Equipment (PPE) provides additional protection to workers exposed to workplace hazards in conjunction with other facility controls and safety systems. PPE is considered to be a last resort that is above and beyond the other facility controls and provides the worker with an extra level of personal protection. The table below presents general examples of occupational hazards and types of PPE available for different purposes. Recommended measures for use of PPE in the workplace include:

- active use of PPE if alternative technologies, work plans or procedures cannot eliminate, or sufficiently reduce, a hazard or exposure.
- identification and provision of appropriate PPE that offers adequate protection to the worker, co-workers, and occasional visitors, without incurring unnecessary inconvenience to the individual.
- proper maintenance of PPE, including cleaning when dirty and replacement when damaged or worn out. Proper use of PPE should be part of the recurrent training programs for Employees.
- selection of PPE should be based on the hazard and risk ranking described earlier in this section and selected according to criteria on performance and testing established.

Objective	**Workplace Hazards**	**Suggested PPE**
Eye and face protection	Flying particles, molten metal, liquid chemicals, gases or vapors, light radiation.	Safety Glasses with side-shields, protective shades, etc.
Head protection	Falling objects, inadequate height clearance, and overhead power cords.	Plastic Helmets with top and side impact protection.
Hearing protection	Noise, ultra-sound.	Hearing protectors (ear plugs or earmuffs).
Foot protection	Falling or rolling objects, pointed objects. Corrosive or hot liquids.	Safety shoes and boots for protection against moving & falling objects, liquids and chemicals.
Hand protection	Hazardous materials, cuts or lacerations, vibrations, extreme temperatures.	Gloves made of rubber or synthetic materials (Neoprene), leather, steel, insulating materials, etc.
Respiratory protection	Dust, f ogs, fumes,mists, gases, smokes, vapors.	Facemasks with appropriate filters for dust removal and air purification (chemicals, mists, vapors and gases). Single or multi-gas personal monitors, if available.
	Oxygen deficiency	Portable or supplied air (fixed lines). On-site rescue equipment.
Body/leg protection	Extreme temperatures, hazardous materials, biological agents, cutting and laceration.	Insulating clothing, etc. body suits aprons of appropriate materials.

4. Monitoring

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Occupational health and safety monitoring programs should verify the effectiveness of prevention and control strategies. The selected indicators should be representative of the most significant occupational, health, and safety hazards, and the implementation of prevention and control strategies. The occupational health and safety monitoring program should include:

Safety inspection, testing and calibration: This should include regular inspection and testing of all safety features and hazard control measures focusing on engineering and personal protective features, work procedures, places of work, installations, equipment, and tools used. The inspection should verify that issued PPE continues to provide adequate protection and is being worn as required.

Surveillance of the working environment: Employers should document compliance using an appropriate combination of portable and stationary sampling and monitoring instruments. Monitoring and analyses should be conducted according to internationally recognized methods and standards.

Surveillance of workers health: When extraordinary protective measures are required (for example, against hazardous compounds), workers should be provided appropriate and relevant health surveillance prior to first exposure, and at regular intervals thereafter.

Training: Training activities for employees and visitors should be adequately monitored and documented (curriculum, duration, and participants). Emergency exercises, including fire drills, should be documented adequately.

Accidents and Diseases monitoring. The employer should establish procedures and systems for reporting and recording:

- Occupational accidents and diseases
- Dangerous occurrences and incidents

These systems should enable workers to report immediately to their immediate supervisor any situation they believe presents a serious danger to life or health.

All reported occupational accidents, occupational diseases, dangerous occurrences, and incidents together with near misses should be investigated with the assistance of a person knowledgeable and qualified in occupational safety. The investigation should:

- Establish what happened
- Determine the cause of what happened
- Identify measures necessary to prevent a recurrence

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Job Safety Analysis (JSA)

Add Organization Name:

Ref: Version:

Business details			
Business name:			
ABN:		Contact person:	
Address:		Contact position:	
Contact phone number		Contact email address:	
Job Safety Analysis details			
Work activity:		Location:	
Who is involved in the activity:		This job analysis has been authorized by: Name: ..... Position:..... . Signature: ..... Date:	
Plant and equipment used:			
Maintenance checks required:			
Tools used:			
Materials used:			
Personal protective equipment:			
Certificates, permits and/approvals required			
Relevant legislation, codes, standard MSDSs etc applicable to this activity			

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Risk Assessment

**Use the risk rating table to assess the level of risk for each job step.

		Likelihood				
		1	2	3	4	5
Consequence		**Rare** The event may occur in exceptional circumstances	**Unlikely** The event could occur sometimes	**Moderate** The event should occur sometimes	**Likely** The event will probably occur in most circumstances	**Almost Certain** The event is expected to occur in most circumstances
1	**Insignificant** No injuries or health issues	**LOW**	**LOW**	**LOW**	**LOW**	**MODERATE**
2	**Minor** First aid treatment	**LOW**	**LOW**	**MODERATE**	**MODERATE**	**HIGH**
3	**Moderate** Medical treatment, potential LTI	**LOW**	**MODERATE**	**HIGH**	**HIGH**	**CRITICAL**
4	**Major** Permanent disability or disease	**LOW**	**MODERATE**	**HIGH**	**CRITICAL**	**CATASTROPHIC**
5	**Extreme** Death	**MODERATE**	**HIGH**	**CRITICAL**	**CATASTROPHIC**	**CATASTROPHIC**

Risk rating:

Low risk: Acceptable risk and no further action required as long as risk has been minimized as possible. Risk needs to be reviewed periodically.

Moderate risk: Tolerable with further action required to minimize risk. Risk needs to be reviewed periodically.

High risk: Tolerable with further action required to minimize risk. Risk needs to be reviewed continuously.

Critical risk: Unacceptable risk and further action required immediately to minimize risk.

Catastrophic: Unacceptable risk and urgent action required to minimize risk.

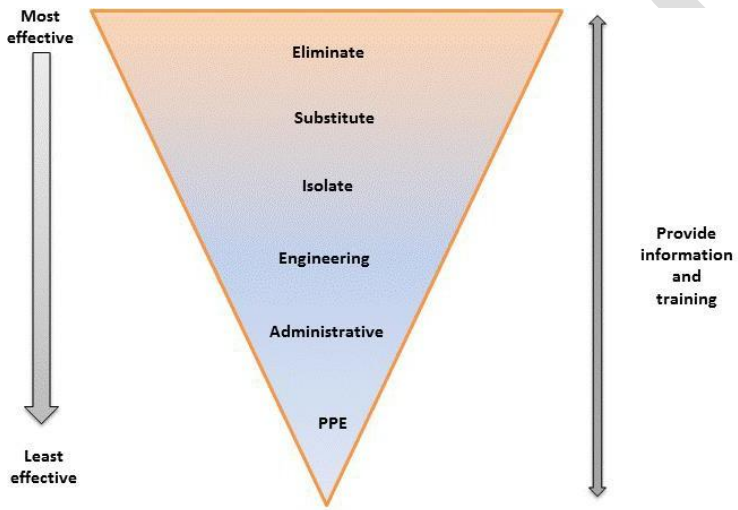
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Risk Controls

The hierarchy of control can be used as an effective tool to deal with health and safety issues at work. Use the type of control suggested as measures to deal with the hazard. Aim to use control measures from as high on the hierarchy of control list as possible. If that is not possible the next option down the list or a combination of the measures should be implemented. The least effective control measure is the use of personal protective equipment (PPE) and it should be used as a last resort or a support to other control measures. Information and training should be integrated with all levels of control to explain how controls work.

- **Eliminate** – if it is possible, the hazard should be removed completely. For example, get rid of dangerous machines.
- **Substitute** – replace something that produces the hazard with something that does not produce a hazard. For example, replacing solvent based paint with water-based paint. Risk assessment on the substitution must be conducted to ensure that it will not pose another hazard.
- **Engineering control** – isolate a person from the hazard by creating physical barrier or making changes to process, equipment or plant to reduce the hazard. For example, install ventilation systems.
- **Administrative control** – change the way a person works by establishing policies and procedures to minimize the risks. For example, job scheduling to limit exposure and posting hazard signs.

Use **personal protective equipment** (PPE) – protect a person from the hazard by wearing PPE. For example, wearing gloves, safety glasses, hard hats and high-visibility clothing. PPE must be correctly fitted, used and maintained to provide protection.



Hierarchy of control

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JSA – Action steps

Step No	Job step details	Potential hazards	Risk rating**	How to control risks***	Name of persons responsible for work

Review number: Version:

Review number: Version:

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This job safety analysis has been developed through consultation with our employees and has been read, understood and signed by all employees undertaking the works:		
Print Names:	**Signatures:**	**Dates:**

Review No	**01**	**02**	**03**	**04**	**05**	**06**	**07**	**08**
Initial:								
Date:								

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Annex 7. Guidelines for Worker Camps/ Accommodation

Before establishing or occupying any workers' accommodation, the Contractor shall prepare a Workers' Accommodation Plan as a component of the CESMP. The Plan shall comply with applicable national and local law and be aligned with the IFC *Workers' Accommodation: Processes and Standards* guidance, the World Bank Environmental and Social Standards—particularly ESS2 (Labor and Working Conditions), ESS3 (Resource Efficiency and Pollution Prevention and Management), and ESS4 (Community Health and Safety)—the World Bank Group General Environmental, Health, and Safety Guidelines, relevant ILO occupational safety and health principles, and WHO guidance on drinking-water quality and water quantity. Where requirements differ, the more protective requirement shall apply unless prohibited by law.

The Plan shall be proportionate to workforce size, duration of occupancy, location, workforce composition, and identified risks, and shall include a site plan, design basis, occupancy schedule, standards-compliance matrix, management structure, operating procedures, inspection arrangements, emergency provisions, budget, and closure commitments. It shall be submitted to the Supervision Consultant and PMU for review and approval, and all land-access agreements, permits, utility arrangements, and required community consultations shall be completed before mobilization.

Workers' Accommodation Standards – Compliance Matrix

Compliance	Standard	Required evidence	Responsible party	Compliance status / action
Legal and permit compliance	Applicable national and local laws, permits, and approvals	Legal register, permits, land-access agreements, and utility approvals	Contractor / Camp Manager	Confirm compliance; record gaps, owners, and deadlines
Accommodation planning	IFC Workers' Accommodation: Processes and Standards	Approved Workers' Accommodation Plan, design basis, occupancy schedule, and site plan	Contractor	Verify before mobilization and occupancy
Labor and worker welfare	World Bank ESS2; relevant ILO principles	Worker consultation records, induction records, Code of Conduct, and worker grievance mechanism	Contractor HR / ESHS team	Correct gaps before occupancy
Site selection and community safety	World Bank ESS4; IFC guidance	Site-screening and hazard assessments, community consultation records, and traffic and security controls	Contractor ESHS team	Apply risk-based buffers and mitigation
Building condition and occupancy	Applicable building, fire, accessibility, public-health, and occupancy requirements	Building approvals, occupancy limits, room inspections, and accessibility assessment	Camp Manager / Facilities team	Prevent overcrowding and close defects

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Water supply and quality	WHO drinking-water guidance; national requirements	Source approval, treatment records, sampling plan, laboratory results, and corrective actions	Water and sanitation lead	Apply the more protective requirement
Sanitation and wastewater	World Bank Group General EHS Guidelines; applicable discharge requirements	Facility capacity checks, cleaning records, wastewater permits, and monitoring results	Camp Manager / Environmental lead	No discharge without approval and compliance evidence
Food safety and hygiene	Applicable food-safety requirements; IFC guidance	Kitchen inspections, food-storage and temperature records, and pest-control records	Catering Manager	Resolve critical hygiene issues immediately
Occupational health and safety	World Bank ESS2; General EHS Guidelines; ILO principles	OHS risk assessments, first-aid coverage, training, inspections, and incident investigations	OHS Manager	Track corrective actions to verified closure
Fire and emergency preparedness	Applicable fire code; General EHS Guidelines	Fire-system tests, evacuation plans, emergency contacts, drill records, and assembly-point inspections	Camp Manager / Emergency Coordinator	Test before occupancy and periodically
Security and worker conduct	World Bank ESS4; Project Code of Conduct	Security procedures, personnel training, incident register, and signed Codes of Conduct	Security Manager / HR	Ensure lawful and proportionate conduct
Resource use and pollution prevention	World Bank ESS3; General EHS Guidelines	Water-use assessment, waste records, bund inspections, spill arrangements, and noise and dust monitoring	Environmental Manager	Apply the mitigation and waste hierarchies
Monitoring and grievance management	World Bank ESS2 and ESS4	Inspection schedules, audit reports, grievance registers, and corrective-action tracker	Camp Manager / ESHS Manager	Escalate serious, repeated, or overdue actions
Closure and reinstatement	Applicable law; IFC good practice	Closure plan, cost provision, disposal records, remediation evidence, joint inspection, and sign-off	Contractor / PMU	Release the site only after completion criteria are verified

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Site selection and layout:

- The Contractor shall apply the mitigation hierarchy and select a stable, well-drained site outside flood-prone areas, landslide zones, watercourse buffers, contaminated land, culturally sensitive areas, protected or high-value habitats, and locations that would cause involuntary land acquisition, livelihood displacement, or unacceptable nuisance to nearby communities.
- The layout shall separate sleeping quarters from kitchens, dining areas, sanitary facilities, fuel and chemical storage, workshops, generators, waste areas, vehicle parking, and other higher-risk activities.
- Safe internal roads segregated pedestrian routes, accessible routes and facilities, lighting, stormwater drainage, firefighting access, assembly points, secure boundaries, and controlled entry shall be shown on the approved site plan.
- Siting and design shall account for climate, natural hazards, prevailing winds, emergency access, and future occupancy.
- Where accommodation is near communities, the Contractor shall establish risk-based buffers and consult affected residents on access, traffic, noise, safety, shared services, community health, and grievance arrangements, consistent with World Bank ESS4 and GIIP.

Accommodation, water, sanitation, and welfare:

- Buildings shall comply with applicable building, fire, accessibility, public-health, and occupancy requirements and shall be structurally sound, weatherproof, ventilated, adequately lit, thermally appropriate, and maintained in a clean and serviceable condition.

- Sleeping rooms shall provide adequate floor area, headroom, privacy, secure personal storage, suitable beds and bedding, vector protection where required, and documented occupancy limits that prevent overcrowding; accommodation arrangements shall respect worker privacy, dignity, cultural needs, and any gender-specific needs.

- Potable water shall be continuously available in quantities sufficient for drinking, food preparation, personal hygiene, cleaning, and laundry, and shall meet applicable national requirements or WHO drinking-water guidance, whichever is more protective.

- Water sources, treatment, storage, distribution, sampling locations, testing frequency, and corrective actions shall be documented.

- Toilets, showers, handwashing points, laundry facilities, and menstrual-hygiene arrangements shall be adequate for the number and composition of workers, conveniently located, safely lit, supplied with water, regularly cleaned, and connected to an approved wastewater treatment or containment system.

- Kitchens and dining areas shall meet recognized food-safety, food-storage, preparation, temperature-control, pest-control, and waste-management requirements.

- Workers shall have reasonable access to rest and recreation space, communication facilities, culturally appropriate meals, and facilities accessible to persons with disabilities where required.

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Health, safety, security, and emergency preparedness:

- The Contractor shall operate the camp under a documented occupational health and safety management system consistent with World Bank ESS2, the World Bank Group General EHS Guidelines, and relevant ILO occupational safety and health principles.
- The camp shall maintain risk-based first-aid coverage, trained first-aiders, referral and medical-evacuation arrangements, communicable-disease prevention measures, vector control, routine cleaning, health surveillance where justified by risk, and health-awareness activities.
- Fire detection and alarm systems, appropriate firefighting equipment, safe electrical installations, marked and unobstructed exits, evacuation routes, emergency lighting, assembly points, emergency contact information, and periodic drills shall be provided, inspected, tested, and recorded.
- Emergency plans shall address credible natural, technological, medical, security, and public-health scenarios and shall be coordinated with local responders where practicable.
- Security personnel, where used, shall be trained, supervised, clearly identifiable, and governed by documented rules on lawful, proportionate, and respectful conduct, incident reporting, and grievance handling.
- Security arrangements shall protect workers and neighboring communities without restricting legitimate access or exposing people to intimidation or abuse.

Worker conduct and community safeguards:

- All residents and camp personnel shall receive induction and periodic refresher training on camp rules, occupational health and safety, respectful behavior, local cultural norms, traffic safety, prohibited activities, environmental protection, emergency arrangements, and available grievance channels, in languages and formats they understand.
- Workers shall sign and comply with the Project Code of Conduct, including requirements addressing exploitation, harassment, violence, discrimination, child protection, trafficking, alcohol and drug misuse, possession of weapons, hunting, collection of wildlife or forest products, and unauthorized access to community property.
- Consistent with World Bank ESS2 and ESS4, the Contractor shall manage labour-influx and community health and safety risks, prevent retaliation, discourage informal settlements and unapproved visitors, and maintain accessible, confidential worker and community grievance mechanisms with documented referral, investigation, response, escalation, and close-out procedures.
- Alleged misconduct shall be handled promptly, fairly, confidentially, and in accordance with applicable law and Project procedures.

Environmental management:

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- Resource use and pollution prevention shall be managed in accordance with World Bank ESS3, the World Bank Group General EHS Guidelines, permits, and applicable law.
- Water abstraction shall be based on an assessment of sustainable yield and shall not reduce community supply, impair other legitimate users, or adversely affect environmental flows.
- Wastewater shall be collected, treated, monitored, reused where safe and practicable, or removed by an authorized service; discharge shall occur only under a valid approval and where monitoring demonstrates compliance with applicable effluent requirements.
- Solid waste shall be managed according to the waste hierarchy, segregated at source, stored in covered and labelled containers, collected routinely, and transferred to authorized recycling, treatment, or disposal facilities; open burning and uncontrolled burial are prohibited.
- Fuels, oils, chemicals, and hazardous wastes shall be inventoried and stored in secure, labelled, compatible, and bunded areas with safety information, spill kits, trained responders, and documented inspection and spill-response procedures.
- Drainage, erosion, dust, noise, lighting, energy use, greenhouse-gas sources where material, and pest control shall be managed through measurable controls to prevent pollution, nuisance, and impacts on neighboring land, water resources, biodiversity, and community health.

Management, monitoring, and records:

- The Contractor shall appoint a Camp Manager and identify qualified personnel responsible for health and safety, security, welfare, cleaning, catering, maintenance, water and sanitation, waste, and grievance management.
- Workers shall be consulted on accommodation conditions and shall be able to report hazards and concerns without retaliation.
- A current resident register, visitor log, induction and Code of Conduct records, permits, occupancy checks, water-quality results, cleaning and maintenance schedules, wastewater and waste-transfer records, pest-control records, emergency-drill records, incident and complaint registers, inspection findings, and corrective-action tracker shall be maintained for the retention period specified by law or the Project.
- The Camp Manager shall undertake documented routine inspections; the Contractor's environmental, social, health and safety team shall conduct periodic compliance audits; and the Supervision Consultant and PMU shall have access for inspections.
- Performance indicators and inspection frequencies shall be risk based.
- Non-conformances shall be assigned to responsible persons, given time-bound corrective actions, verified before closure, and escalated where repeated, overdue, or serious.

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- Material incidents shall be notified and investigated in accordance with Project and lender requirements.

Decommissioning and reinstatement:

- The Workers' Accommodation Plan shall include a time-bound closure and reinstatement procedure, cost provision, completion criteria, and post-closure responsibilities agreed with the landowner and relevant authorities.
- Before demobilization, the Contractor shall assess closure risks and identify any lawful and beneficial assets proposed for handover.
- Temporary structures, utilities, foundations, wastes, contaminated material, and surplus equipment shall be removed unless an alternative handover is documented, accepted by the recipient, and approved.
- Contaminated areas shall be investigated and remediated to applicable risk-based standards; drainage shall be made safe; disturbed ground shall be stabilized and revegetated with suitable species; and access restrictions shall be removed or retained as agreed.
- The Contractor shall complete a joint closure inspection with the landowner, Supervision Consultant, and PMU, address outstanding grievances and defects, retain disposal and remediation records, and submit evidence that the site is safe, stable, clean, and restored to the agreed condition before release.
- Any required post-closure monitoring shall continue until completion criteria are met.

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Annex 8.SEA/SH Prevention and Risk Management Plan/ SEA/SH Action Plan

A standalone SEA/SH Prevention and Risk Management Plan / SEA- SH Action Plan shall be prepared prior to the commencement of civil works in the road section, consistent with the World Bank Good Practice Note on Addressing SEA/SH in Investment Project Financing involving Major Civil Works. and implemented throughout construction. The full SEA/SH plan, including detailed activities, the SEA/SH case-handling protocol, and the GBV/SEA/SH risk assessment for the project area, shall be maintained and incorporated into this ESMP and the CESMP.

The SEA/SH Action Plan for this project can adopt the previous GBV Risk Prevention and Management Action Plan (SEA/SH Action Plan) that was prepared by the PMU Gender Specialist for the broader Gleno-Maubisse corridor and incorporate it into the action plan below, with adjustments to the risk level and impacts.

The SEA/SH Action Plan sets out the measures to prevent, mitigate and respond to sexual exploitation, abuse and sexual harassment (SEA/SH) associated with the project. The Action Plan is guided by six principles: being survivor-centered, emphasizing prevention, building on existing local knowledge, being evidence-based, being adaptable, and enabling continuous monitoring and learning.

Main Drivers of SEA/SH Risk for this project:

- High prevalence and normalization of GBV: According to the Nabilan Baseline Study 2016[3], GBV is the largest category of crime reported to the police, although most cases are handled informally and never reported. 14% of women aged 18-49 have been raped by a non-partner, and childhood sexual abuse affects 24% of women and 42% of men. The majority of women and men consider wife-beating justified in some circumstances.
- Severe under-reporting: only 5% of women raped by a non-partner reported it to police, and most perpetrators face no legal consequences (Nabilan Baseline Study, 2016). No updated national prevalence data, although some SEA/SH cases have been reported in online media.
- Labor influx: predominantly male workers, including non-local workers, in rural communities, with interaction at public facilities and along access roads.
- Power imbalances: project workers' relative income and control over local jobs, land access or services can create opportunities for exploitation of women, girls and other vulnerable people.
- Limited local services: no specialized GBV shelter, medical-forensic or legal aid provider is based in Ainaro. Survivors rely on social welfare officers, and the closest service providers are in Suai.
- Remote, mountainous terrain and poor connectivity make reporting, referral, and supervision more difficult.

[3] https://asiafoundation.org/wp-content/uploads/2017/06/nabilan-main-report-screen-2017_06_08.pdf

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Action Plan

Below is the template for the SEA/SH Action Plan that needs to be finalized as part of this ESMP and later for the contractor, incorporated into the CESMP.

Mitigation action	Key implementation steps	Responsible (lead / support)	Timeline	Budget (USD)	Indicators	Monitoring & reporting
A. RISK ASSESSMENT AND PLANNING						
1. Assess project SEA/SH risks and reflect them in all E&S instruments (ESMP, C-ESMP).	Complete SEA/SH risk screening for corridor work sites, camps and access roads Consult women, girls and at-risk groups safely Update this Action Plan when scope, sites or risks change	PMU gender specialist	Before bidding; update annually or as needed	[]	PMU	PMU
B. BEHAVIOURAL STANDARDS AND TRAINING						
2. Include SEA/SH requirements and costs in bidding documents and contracts.	Include CoC, worker training, SEA/SH reporting and sanctions in bid documents Evaluate bidders' SEA/SH proposals; require the contractor's C-ESMP to cover SEA/SH and include the line items or provisional sums in the BoQ	PMU procurement and gender specialist	Bidding and contract award	Contractor BoQ	SEA/SH requirements in bid documents and contracts (Y/N)	PMU
3. Adopt and enforce a Code of Conduct (CoC) prohibiting SEA/SH for all project workers.	Prepare project-specific CoC in Tetum and English All workers, subcontractors and consultants sign the CoC before starting work Apply clear sanctions for breaches, including dismissal and police referral	Contractor (lead); Supervision Consultant; IA/PIU	Before mobilisation; ongoing for new workers	Contractor BoQ	CoC in place (Y/N) % workers who signed CoC	Supervision Consultant; PMU
4. Train workers on the CoC, SEA/SH prohibitions, reporting channels and support services.	Induction training before works start Refresher sessions (e.g. quarterly toolbox talks) Train GM focal points in the survivor-centred approach	Contractor (lead); GBV service provider	Before works start; quarterly	[ ]	% workers trained # training/ refresher sessions GM focal points (Y/N)	Supervision Consultant; IA/PIU
C. GRIEVANCE MECHANISM, REFERRAL AND RESPONSE						
5. Map GBV service providers and establish a referral pathway for Ainaro.	Confirm available services and contacts providers Agree referral procedures, including	PMU; Contractor; GBV service provider	Before works start; annual update	[ ]	Referral pathway available for all project sites (Y/N)	PMU

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	transport where needed Update the pathway at least annually					
6. Integrate SEA/SH into the project GM (community and worker GMs), with safe and confidential channels.	Prepare survivor-centred SOP: intake, referral, verification, sanctions and timeframes Provide multiple channels, including female focal points and anonymous options Record only minimal, anonymised case data; protect confidentiality	PMU; Contractor; GBV service provider	Before works start	[ ]	SEA/SH SOP in place (Y/N) # SEA/SH cases received (by type, status)	PMU
7. Respond to SEA/SH incidents in line with a survivor-centred approach.	Offer referral to services within 24 hours of disclosure, based on survivor consent Verify allegations and apply sanctions for perpetrators Notify the World Bank within the required timeframe; implement corrective actions	PMU; Contractor; service providers	Throughout implementation	[ ]	% cases referred to services % cases closed within SOP timeframe	PMU
8. Raise community awareness of SEA/SH, the CoC, GM channels and available services.	Prepare Information, Education, and Communication (IEC) materials in Tetum and local languages (e.g.Mambai) Hold sessions with women, youth, schools and suco leaders near works sites Revise messages based on community feedback	PMU; GBV service provider; Contractor	Before works start; quarterly	[ ]	# community members reached (by sex) # awareness sessions held	PMU
D. TECHNICAL EXPERTISE AND SUPERVISION						
9. Assign SEA/SH expertise in the PMU and Supervision Consultant.	Designate a Gender specialist with SEA/SH responsibilities Include SEA/SH monitoring in the Supervision Consultant's ToR	PMU	Before bidding	PMU	GBV/social specialist (Y/N) Supervision Consultant with SEA/SH role (Y/N)	PMU
10. Engage a GBV service provider to support survivor services and SEA/SH activities.	Prepare ToR and contract a qualified provider Scope: survivor support and referral, worker training, awareness raising, GM support	PMU	Before works start	PMU	GBV service provider in place (Y/N) # survivors supported (by service type)	PMU
E. MONITORING AND REPORTING						

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11. Monitor and report on implementation of this Action Plan.	Report progress in monthly contractor reports and quarterly E&S reports Review indicators and update the Action Plan and C-ESMP with corrective actions	PMU; Contractor; Supervision Consultant	Monthly / quarterly	[ ]	SEA/SH progress included in E&S reports (Y/N)	PMU

Project SEA/SH referral contacts (to be confirmed before works start)

Service provider	Services	Location	Contact
	First contact, case liaison and referral		[ ]
	Police reporting and protection		[ ]
	Emergency medical care		[ ]
	Counselling, medical-forensic examination, temporary safe accommodation		[ ]
	Legal information and representation		[ ]
	Survivor support, accompaniment, referral		[ ]

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Annex 9. Chance Find Procedure and Cultural Heritage Management Plan

Chance Find Procedure

This Chance Find Procedure applies to all civil works undertaken under the project section, including road works, ancillary aggregate sourcing, construction laydown sites and haulage routes. The ESIA has identified several physical cultural resources and sacred sites within the Project's area of influence, Other than potential impacts on these known cultural or heritage sites from the confirmed right-of-way clearance or excavation works, there are also possibility of previously unidentified cultural heritage or archaeological material, including human remains, being uncovered during earthworks. This procedure has therefore been developed as a precautionary measure, consistent with ESS8, and will be incorporated into the Contractor's CESMP and works specifications, so that any chance find is managed without delay and without loss of, or damage to, cultural heritage. The procedure will also be guided by Decree Law No. 33/2017 (the Law of Cultural Heritage of Timor-Leste) which obliges local government to preserve, defend and enhance cultural heritage within its jurisdiction, and which conditions licensing and works on the Ministry responsible for Culture's prior assent for a site proposed for classification. This Chance Find Procedure applies to all Project personnel, including the Contractor and its subcontractors, throughout the pre-construction, construction and post-construction phases.

Objectives:

• Integrate project activities measures into the protection, development, and sustainable use of Cultural Heritage.
• Ensure the safeguarding of Cultural Heritage during the pre-construction, construction, and post-construction phases.
• Protect physical cultural resources from adverse impacts of activities and support their long-term preservation.
• Promote fair and equitable sharing of benefits derived from the use of physical cultural resources.

Procedure:

i. Immediate Work Suspension: Stop all construction or excavation activities in the area where archaeological or cultural heritage remains are discovered.
ii. Site Delineation and Securing: a) Clearly mark, delineate, and fence the discovery area; b) Secure the site to prevent damage, disturbance, or removal of artifacts; c) Arrange on-site guarding, including night security, if necessary, until relevant authorities assume responsibility.
iii. Protection of Finds: a) Prohibit workers or any other parties from handling, collecting, or removing discovered objects or remains; b) Implement preliminary protective measures to safeguard the find.
iv. Notification and Documentation: a) Inform all activity personnel of the discovery and applicable protection measures; b) Record the discovery in a Site Incident/Chance-Find

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Report, including its location, description, photographs and GPS/geo-reference points, and immediate actions taken; c) Notify the the responsible local authorities (Chefe Suco, Administrative Post Administrator and Municipal Administrator) and the relevant cultural heritage or archaeological institutions immediately (within 24 hours or less).

v. Assessment and Evaluation: a) Facilitate a rapid preliminary assessment by a qualified archaeologist or heritage specialist engaged by the PMU; b) Assess the significance of the find against recognized cultural heritage criteria (aesthetic, historic, scientific, social and economic value); c) For a find of possible national or local interest, refer the assessment to the Advisory Committee on Cultural Heritage for a recommendation on classification (Decree Law No. 33/2017)

vi. Decision-Making by Authorities: a) The responsible authorities determine the appropriate management option, following the hierarchy of site avoidance (realignment/redesign to avoid the site, the preferred option), site protection (fencing/covering in place), or, where avoidance is not feasible, mitigation (in-situ restoration, then relocation/removal of movable heritage under the heritage authority's direction); b) Where the find is, or may be, human remains, the authorities will direct either avoidance or exhumation to a predetermined reinterment site, following any customary procedure required before works resume in the area of the find.

vii. Implementation of Mitigation Measures: a) Implement the authority-approved measures exactly as formally communicated in writing; b) Measures may include redesign, avoidance, protection, conservation, restoration, salvage or preservation of the site or objects, in accordance with the management option selected in the previous step.

viii. Resumption of Works: Works in the affected area resume only after formal written clearance from the responsible authorities confirming that cultural heritage protection requirements have been met, followed by a written instruction from the PMU/contracting authority to the Contractor to proceed.

ix. Monitoring and Coordination: Cooperate with the relevant authorities (Chefe Suco, Suco Council, Administrative Post and Municipal Administration, and the Ministry of Higher Education, Science and Culture) to monitor construction activities and ensure ongoing compliance with approved cultural heritage protection and preservation measures; maintain the Chance-Find log and Site Incident Reports as the Project's central record.

x. Records and Reporting: Maintain a complete record of every find in the Project's Chance-Find log, and summarize this in the ESMP's periodic monitoring reports. The record includes maps, GPS/geo-reference points, photolog, copies of correspondence with the responsible authorities, and the conclusions, recommendations and clearance received.

Cultural Heritage Management Plan (CHMP) – Outline

A standalone Cultural Heritage Management Plan (CHMP) shall be prepared prior to the commencement of civil works in the road section, consistent with ESS8, and implemented throughout construction. The outline below sets out the CHMP's intended structure and content; the full CHMP will expand each section based on detailed design, field verification, and consultation with Rai Nain custodians, Suco leadership, and the responsible cultural-heritage authority.

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1. Introduction and objectives: purpose of the CHMP, its relationship to the ESIA/ESMP, and its objectives (protection and, where relevant, sustainable use of cultural heritage; safeguarding of physical cultural resources across pre-construction, construction and post-construction phases; fair and equitable sharing of any benefits derived from cultural heritage).
2. Legal and policy framework: applicable Timor-Leste cultural-heritage legislation and institutional mandates, alongside ESS8 requirements.
3. Baseline description of cultural heritage resources: an inventory and description of identified sites within the Project's area of influence, including the Horizontal Cave, the Heluli ancestral site, Uma Lulik, sacred springs, cemeteries and other communal ritual sites, each with its custodianship (Rai Nain/Suco), significance, and proximity to the right-of-way.
4. Impact and risk assessment: summary of potential construction and operation-phase impacts on each identified resource (direct disturbance, vibration, restricted access, severed customary/ritual use), drawn from the ESIA's Impact Significance Matrix.
5. Mitigation hierarchy and management measures: avoidance through design buffers and alignment adjustment wherever feasible; minimization through scheduling around ritual/harvest calendars (e.g., Sau Batar); pre-clearance walkovers and sign-off with community/customary elders; marking, fencing and access control before works reach a site; and, for the horizontal-cave area specifically, a joint investigation and design review prior to finalizing the detailed design.
6. Chance find procedures: the standalone procedure to be followed in the event of an unanticipated discovery during earthworks, set out in full in Section B below.
7. Consultation, disclosure and grievance handling: engagement with Rai Nain custodians, Suco Councils and other customary authorities prior to and during implementation, and the interface with the Project's Grievance Redress Mechanism for any cultural-heritage-related concern.
8. Institutional roles and responsibilities: PMU (CHMP oversight and coordination with the cultural-heritage authority), Contractor (day-to-day site protection and Chance Find Procedure implementation), Supervision Consultant (field oversight and verification), and the responsible Ministry (assessment and decision-making on significant finds).
9. Training and capacity building: induction and refresher training for Contractor and PMU field staff on cultural-heritage awareness, the Chance Find Procedure, and coordination protocols with customary authorities.
10. Monitoring and reporting: indicators (e.g., Chance-Find log, walkover sign-off records, cave investigation status), frequency, and reporting lines, consistent with Section 5.1/Table 5.2 of this ESMP.
11. Budget: estimated cost of CHMP implementation (walkovers, marking/fencing, joint investigation, training), to be consolidated in ESMP Implementation Budget.

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Annex 10. Spoil Disposal Site Selection and Compliance Checklist

This Annex applies where the PMU or Supervision Consultant **has not** established a site-selection procedure.

Complete **one copy** of this checklist **for each proposed temporary or permanent spoil disposal site** for the 12 km road corridor of TLBRP2 Section 1. The Contractor shall submit the completed checklist and supporting evidence to the Engineer before clearing, access construction, or spoil placement. Approval of this checklist does not replace any environmental license, land agreement, community consultation, or other statutory or financing requirement.

1. Compliance Use and Decision Process

Use this attachment as a staged compliance record. First complete the mandatory eligibility checklist; any "Fail" result disqualifies the site unless the constraint is lawfully resolved and the site is reassessed. Then complete the weighted assessment, required investigations, approvals, and field verification. ***The objective is a geotechnically stable, environmentally and socially acceptable, accessible, constructible site that can be closed and rehabilitated without unacceptable erosion, landslide, safety, land-access, cultural-heritage, or livelihood risk.*** Avoidance and beneficial reuse of excavated material shall be considered before disposal.

Site identification and review record — complete for each candidate site			
Project / contract	TLBRP2 – Section 1 / _____	**Candidate site ID**	_____
Location	_____	**Coordinates**	_____
Landowner / customary users	_____	**Current land use**	_____
Estimated capacity	_____ m^3	**Assessment date**	_____
Prepared by	_____	**Engineer review**	_____
Final decision	☐ Approved ☐ Approved with conditions ☐ Rejected Decision reference: _____		

2. Mandatory Eligibility Checklist — Pass/Fail

Table 1. Mandatory site eligibility screening

No	Pass requirement	Evidence / record	Cross-reference	Result / action
1	Site is outside protected areas, critical or high-value habitat, intact natural forest, known wildlife corridors, wetlands, and other legally protected or environmentally sensitive areas.	Maps, field photos, ecology screening	ESMP—biodiversity; environmental license; R3/R5	☐ Pass ☐ Fail Action: _____
2	Site is outside active river channels, floodways, springs, wetlands, and drainage lines, and spoil cannot obstruct drainage or wash into a watercourse.	Drainage map, site inspection, photos	ESMP—water, erosion and sediment; environmental license	☐ Pass ☐ Fail Action: _____
3	Site is outside unstable slopes, active or historical landslides, rockfall zones, debris-flow paths and highly erodible soils, and is not positioned above receptors exposed to failure.	Geotechnical inspection/report, hazard map	ESMP—geohazards and community safety; R4	☐ Pass ☐ Fail Action: _____
4	Site avoids community water sources, irrigation infrastructure, cultivated terraces, productive agricultural land, coffee plantations, grazing areas, and other livelihood assets; any unavoidable impact is supported by documented agreement.	Land-use survey, consultation record, agreement	ESMP—water, land access, livelihoods and grievance; R5	☐ Pass ☐ Fail Action: _____
5	Site avoids residential areas, schools, clinics, markets, places of worship, cemeteries, sacred or customary sites, archaeological sites, and other cultural-heritage receptors.	Receptor map, cultural-heritage screening, consultation	ESMP—community health and safety; cultural heritage; R3/R5	☐ Pass ☐ Fail Action: _____
6	Land ownership, customary tenure, access, compensation, livelihood, and community objections are resolved.	Due-diligence record, signed agreement, grievance log	ESMP—land access, consultation and grievance; R5	☐ Pass ☐ Fail Action: _____
7	The site causes no involuntary physical displacement or significant economic displacement.	Social screening and livelihood assessment	ESMP—social safeguards; R5	☐ Pass ☐ Fail Action: _____
8	Safe haul-road access, drainage control, retaining measures, compaction, progressive rehabilitation, and long-term maintenance are practicable.	Concept design, access assessment, costed controls	ESMP—traffic, erosion, rehabilitation; R4	☐ Pass ☐ Fail Action: _____
9	Site is within the approved project footprint and environmental approval, or written clearance has been obtained from the Engineer and relevant authority.	Approved footprint map and written clearance	Environmental license; R1/R2/R3	☐ Pass ☐ Fail Action: _____
10	Site is not prohibited by the environmental license, ESMP, permit conditions, land-use requirements, or relevant-authority instructions.	Compliance review signed by environmental specialist	R1–R5; project-specific conditions prevail	☐ Pass ☐ Fail Action: _____

Eligibility decision:

☐ All criteria passed — proceed to weighted assessment

☐ Site rejected / reassessment required.

Reviewed by: _____ Date: _____

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3. Weighted Site Assessment and ESMP Cross-Reference

Table 2. Weighted spoil disposal site assessment

No	Criterion / weight	Compliance requirement	Evidence and ESMP / approval cross-reference	Rating / weighted score
1	**Geotechnical stability and topography — 25%**	No active instability; manageable slope geometry; adequate crest and toe setbacks; engineered benches, toe support, compaction and safe final batter angles are feasible. High-risk sites require geotechnical specialist assessment.	Geotechnical report, survey and design drawings. ESMP—geohazards/community safety; R4.	Rating: ___ /5 Score: ___ /25
2	**Drainage, erosion and sediment risk — 20%**	Clean runoff can be diverted; site water safely conveyed; ponding prevented; sediment controls installed; low risk of gullying, downstream scour, sediment discharge, or blocked culverts/channels; intense rainfall and climate resilience addressed.	Catchment plan, drainage and erosion-control design, rainfall criteria. ESMP—water/erosion; environmental license; R4.	Rating: ___ /5 Score: ___ /20
3	**Environmental sensitivity — 15%**	Previously disturbed or low-value land preferred; vegetation clearance, riparian impacts, habitat fragmentation, sensitive flora/fauna, and surface- or groundwater impacts avoided; project buffers maintained.	Ecology and water screening, maps, photos. ESMP—biodiversity/water; environmental license; R3/R5.	Rating: ___ /5 Score: ___ /15
4	**Social, land and cultural acceptability — 15%**	Lawful and customary access verified; affected landholders and communities consulted; no unresolved grievance or avoidable livelihood impact; access to homes, farms and services maintained; cultural-heritage screening complete.	Land agreement, consultation minutes, grievance and heritage records. ESMP—land/livelihoods/consultation/heritage; R5.	Rating: ___ /5 Score: ___ /15
5	**Capacity, material suitability and constructability — 10%**	Surveyed capacity accommodates forecast spoil plus cover and drainage works; controlled placement in layers is feasible; hazardous, contaminated, organic and unsuitable waste is excluded; reusable topsoil can be separated.	Capacity calculation, material classification and method statement. ESMP—materials/waste; R4.	Rating: ___ /5 Score: ___ /10
6	**Haul distance, access and road safety — 10%**	Haul distance is reasonable; access gradients and turning space are safe; village disturbance is minimized; roads and bridges have adequate capacity; traffic, dust and maintenance controls are feasible.	Haul-route assessment and traffic-management plan. ESMP—traffic, dust, community safety; R4.	Rating: ___ /5 Score: ___ /10
7	**Closure, rehabilitation and future land use — 5%**	Final landform is stable, blends with terrain, drains freely, receives saved topsoil and appropriate revegetation, and can be returned to an agreed safe use with inspection and maintenance access.	Closure contours, rehabilitation plan and land-use agreement. ESMP—rehabilitation/monitoring; R4/R5.	Rating: ___ /5 Score: ___ /5
Total weighted score				**___ /100**

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4. Scoring and Approval Gateways

Table 3. Rating scale and approval decision

Rating	Meaning	Approval gateway	Result
1	Unacceptable / high risk	The site is acceptable only when all of the following apply: • Every Exclusion Criterion passes. • Total weighted score is at least 70/100. • The Engineer and relevant environmental and land authorities provide written approval. If sites score similarly, select the option with lower residual environmental and social risk rather than lowest haul cost alone.	EX checks passed: ☐ Yes ☐ No Total score: ___ /100 Critical criteria ≥3: ☐ Yes ☐ No Written approvals attached: ☐ Yes ☐ No **Decision:** ☐ Accept ☐ Conditional ☐ Reject
2	Major constraints		
3	Acceptable with substantial controls		
4	Good with standard controls		
5	Preferred / low risk		

5. Responsibilities, Required Records and Hold Points

Table 4. Investigation, approval, operation and closure register

Stage	Required action	Lead / review responsibility	Required record / hold point	Status
1. Desk screening	Identify candidates using cut-and-fill estimates, topography, land use, environmental sensitivity, drainage, settlements, protected areas and known hazards.	Contractor environmental specialist and surveyor / Engineer review	Screening map and candidate-site register. **Hold point:** candidate accepted for field inspection.	☐ Closed
2. Joint field inspection	Inspect with the Contractor, Engineer, environmental and social specialists, surveyor and geotechnical specialist where required; consult suco/aldeia leadership, affected landholders and users.	Contractor / Engineer; environmental, social and geotechnical specialists	Signed inspection record, photographs and consultation notes. **Hold point:** no design until constraints are recorded.	☐ Closed

3. Survey and capacity	Record coordinates, boundaries, land use, access, catchment and drainage paths, usable area, lift height, final contours and capacity including bulking allowance.	Contractor surveyor / Engineer	Survey plan, sections and capacity calculation.	☐ Closed
4. Risk assessment and design	Define topsoil stripping/storage, toe and slope stability, layer thickness, compaction, clean-water diversion, sediment controls, access, traffic controls, rehabilitation, closure contours, revegetation, monitoring and emergency response.	Contractor designer and environmental specialist / Engineer and geotechnical specialist	Site-specific spoil disposal and rehabilitation plan; drawings; method statement. **Hold point:** design acceptance.	☐ Closed
5. Land and community documentation	Confirm tenure and customary interests; document consultation and agreement; define compensation or livelihood measures where applicable; record the grievance mechanism.	Contractor social specialist / Engineer and project owner	Due-diligence record, signed agreement, consultation disclosure and grievance contact. **Hold point:** land access confirmed.	☐ Closed
6. Formal approval	Submit the completed assessment, drawings, photos, calculations, consultation records and management plan; obtain any amendment or additional environmental authorization.	Contractor submits / Engineer, project owner and relevant authorities approve	Written Engineer approval and statutory/land approvals. **Hold point:** no clearing or deposition before release.	☐ Released
7. Operation and closure	Mark limits; maintain a placement register; inspect after heavy rainfall; stop work for instability or uncontrolled runoff; complete stabilization and revegetation; obtain closure acceptance.	Contractor site manager and environmental officer / Engineer	Placement log, inspection records, corrective actions, as-built/closure record and acceptance certificate.	☐ Closed

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6. Field Verification and Close-out Checklist

Table 5. Field verification and close-out record

No	Verification item	Evidence / linked record	Checked by / date	Status / corrective action
1	Candidate site ID, coordinates, chainage and access route recorded.	Site plan / GPS / photos	_____	☐ C ☐ NC ☐ N/A _____
2	Landowner, customary users and current land use verified.	Hold Point #05 record	_____	☐ C ☐ NC ☐ N/A _____
3	Site boundary, footprint, maximum height and capacity surveyed.	Hold Point #3 survey and calculation	_____	☐ C ☐ NC ☐ N/A _____
4	Slope condition, soil/rock type, erosion features and landslide evidence assessed.	Selection Criterion #01 / geotechnical record	_____	☐ C ☐ NC ☐ N/A _____
5	Upslope catchment, drainage lines, waterways, springs and downstream receptors mapped.	Selection Criterion #02 / drainage plan	_____	☐ C ☐ NC ☐ N/A _____
6	Distances to houses, schools, clinics, farms, cultural sites and protected or sensitive habitat checked.	Exclusion Criterion #1, #4, and #5 / receptor map	_____	☐ C ☐ NC ☐ N/A _____
7	Haul-route safety, village disturbance, dust, noise and road/bridge capacity assessed.	Selection Criterion #6 / traffic plan	_____	☐ C ☐ NC ☐ N/A _____
8	Retaining, drainage, sediment, compaction and stabilization measures defined and installed as required.	Hold Point #4 plan / inspection photos	_____	☐ C ☐ NC ☐ N/A _____
9	Topsoil management, progressive rehabilitation, revegetation and final land use agreed and implemented.	Selection Criterion #7 / rehabilitation record	_____	☐ C ☐ NC ☐ N/A _____
10	Land agreement, consultation record, grievance contact,	Hold Point #5 and #6 records	_____	☐ C ☐ NC ☐ N/A _____

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	permits and written approvals attached.			
11	Responsible persons, routine and rainfall-triggered inspections, corrective-action timeframes and closure criteria assigned.	Monitoring schedule / responsibilities matrix	_____	☐ C ☐ NC ☐ N/A _____
Status key: C = compliant; NC = non-compliant; N/A = not applicable. All NC items require a responsible person, due date, corrective-action evidence and Engineer closure before the relevant hold point is released.				

Table 6. Compliance cross-reference key

Reference	Document / requirement	Application to this checklist
R1	Approved project ESMP	Apply relevant requirements for spoil and waste, erosion and sediment, water, biodiversity, traffic and community safety, land access and livelihoods, cultural heritage, consultation and grievance, rehabilitation, monitoring, incident response and corrective action.
R2	Project environmental license and conditions	Verify that the proposed site and controls are within the approved scope; record the applicable condition numbers in the evidence column and obtain any required amendment or authority clearance.
R3	Timor-Leste Environmental Licensing Decree-Law No. 5/2011, as amended, and applicable environmental assessment and public consultation requirements	Confirm legal screening, consultation, approval and recordkeeping obligations with the project's authorized environmental specialist.
R4	Contract specifications, approved drawings, method statements and management plans	Use the current approved document number and revision for technical design, construction controls, inspection, monitoring, rehabilitation and closure.
R5	Applicable lender environmental and social safeguard requirements	Apply project-specific requirements for biodiversity, land and livelihoods, community safety, cultural heritage, consultation, grievance and documentation.
Precedence: Project-specific license conditions and relevant-authority directions apply where more stringent. Enter exact ESMP section numbers, license condition numbers, document references and revisions in each completed site record.		

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Certification and approval
Prepared by — Contractor environmental / social representative **Name: _____ Signature: _____ Date: _____**
Technical verification — geotechnical / design representative, where required **Name: _____ Signature: _____ Date: _____**
Reviewed by — Engineer **Decision / conditions: _____** **Name: _____ Signature: _____ Date: _____**
Authority / project-owner approval reference, where required **Reference: _____ Date: _____ Conditions attached: ☐ Yes ☐ No**

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