



**SHIRE OAK
INTERNATIONAL**

Construction Environmental and Social Management Plan (C-ESMP)

**Shire Oak – Rooftop Solar Projects in Vietnam and
Indonesia - Construction Phase**

Revisions and Version History

This page is a record of all approvals and revisions of this document. All previous versions are superseded.

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Contents

Definitions and Glossary 4

1. Introduction and Purpose 6

2. Project Standards..... 8

3. Project Description 10

4. Roles, Responsibilities and Competencies 13

5. Communications and Grievances 15

6. Management, Monitoring and Reporting 16

Definitions and Glossary

CI1	Means Climate Investor One, a financing facility for renewable energy projects in emerging markets offering an integrated funding solution. “CI1 Funds” means the Development and the Construction Equity Fund.
Community Development	The implementation of needs-based programmes designed to deliver positive and sustainable impact to project communities throughout the investment lifecycle; add to the enabling environment in which the Fund seeks to invest; enhance the profile of the Fund, create goodwill for the Fund, the Funds’ existing and future investments; lay the foundations for ongoing community engagement and development; and add to the resilience of the community to future climate and economic shocks.
Environmental and Social Requirements	The more stringent of (i) Environmental Law, (ii) Social Law, (iii) statutory requirements; (iv) permits and licences, (v) ILO Core Labor Standards, ILO Basic Terms and Conditions of Employment and UN Guiding Principles on Business and Human Rights (UNGP), (vi) all applicable IFC Performance Standards, and (vii) all other requirements set by this ESMS.
ESAP	The environmental and social action plan agreed upon between the Fund and Project Company, defining actions, responsibilities, deliverables, compliance indicators, and a timeframe for the measures required to remedy the known non-compliances of the business activities of the Project Company with the Environmental and Social Requirements and for any other measure agreed upon, as amended from time to time.
Environmental and Social Management System (ESMS)	A system describing the governance, institutional, organisational and management arrangements for appropriately addressing the HSSE impacts and risks of a Project.
Good International Industry Practice (GIIP)	The exercise of professional skill, diligence, prudence, and foresight that would reasonably be expected from skilled and experienced professionals engaged in the same type of undertaking under the same or similar circumstances globally or regionally. The outcome of such exercise should be that the Project Company employs the most appropriate technologies in the project-specific circumstances (source: IFC).
Grievance	A concern, complaint or feedback raised by any stakeholder either affected or interested in company operations. Both concerns and complaints can result from either real or perceived impacts of a company’s operations.
Grievance Mechanism	A mechanism for people to raise complaints and grievances and for these to be received and resolved appropriately and in accordance with Principle 31 of the UN Guiding Principles on Business and Human Rights.
Human Rights	Human rights are inherent in all human beings, whatever their nationality, place of residence, sex, national or ethnic origin, colour, religion, language, or any other status. Every individual is entitled to enjoy human rights without discrimination. These rights are all interrelated, interdependent and indivisible. Human rights are often expressed and guaranteed by law, in the form of treaties, customary international law, general principles and other sources of international law. International human rights law sets out obligations on States to act in certain ways or to refrain from certain acts, so as to promote and protect the human rights and fundamental freedoms of individuals or groups. Business can impact all human rights both positively and negatively. Source: https://www.unglobalcompact.org/
International Finance Corporation	An international organisation established in Washington, DC, USA, by Articles of Agreement among its member countries.
IFC Performance Standards	The IFC Performance Standards on Social and Environmental Sustainability (including the technical reference documents known as IFC’s Environmental, Health, and Safety Guidelines), as reflected on the IFC website.
Impact	An environmental or social impact is defined as any alteration of existing conditions, adverse or beneficial, caused directly or indirectly by a Project that results in a specific consequence to a resource/receptor.
Incident	An event or chain of events which caused or could have caused injury, illness, loss of assets or potential or actual damage to relationships or reputation.
Monitoring	In the context of this document, an umbrella term that includes various methods for evaluating performance including inspections and visual observations, and measuring and testing to confirm performance against key performance indicators.

Project	Project (consisting of assets and activities) in which a CFM-Managed Vehicle is or is going to be invested.
Project Company(ies)	means any company, partnership or other entity in which a CFM managed vehicle holds an Investment (source: AOIC Annexure A).
Stakeholder	Persons or groups that are directly or indirectly affected by a project as well as those that may have interests in a project and/or the ability to influence its outcome, either positively or negatively. This can refer to shareholders, investors, employees, communities, governments, industries and (international) third parties.
Stakeholder engagement	An umbrella term encompassing a range of activities and interactions between CFM and stakeholders (two-way communication) over the life of a project that are designated to promote transparent, accountable, positive, and mutually beneficial working relationships
UN Guiding Principles on Business and Human Rights	The United Nations Guiding Principles on Business and Human Rights were published in 2011 as the standard of responsibility for business with regard to human rights. The UNGP are founded on three pillars: (i) the State duty to protect human rights against abuse by third parties, including business, through appropriate policies, legislation, regulations and adjudication; (ii) the corporate responsibility to respect human rights, meaning to act with due diligence to avoid infringing on the rights of others and address adverse impacts with which they are involved; and (iii) the need for greater access to effective remedy , both judicial and non-judicial, for victims of business-related human rights abuse. The focus of the UNGP is on avoiding and addressing negative impacts. Source: https://www.unglobalcompact.org/
Vulnerable Groups	Individuals or groups within the project area of influence who could experience adverse impacts more severely than others based on their vulnerable or disadvantaged status. This vulnerability may be due to an individual's or group's race, sex, language, religion, political, opinion, national or social origin, property, birth or other status. Other factors should also be considered including gender, ethnicity, culture, sickness, physical or mental disability, poverty or economic disadvantage, and dependence on unique natural resources

AC	Affected Communities
CDP	Community Development Programme
C-ESMP	Construction Environmental and Social Management Plan
CFM	Climate Fund Managers
CI1	Climate Investor One
CLO	Community Liaison Officer
COD	Commercial Operations Date
EPC	Engineering, Procurement and Construction
E&S	Environmental and social risk
ESIA	Environmental and Social Impact Assessment
ESMS	Environmental and Social Management System
GIIP	Good International Industry Practice
GM	Grievance Mechanism
HR	Human Resources
HSSE	Health, safety, social and environmental
IFC	International Finance Corporation
IFC PS	International Finance Corporation Performance Standards
ILO	International Labour Organisation
KPI	Key Performance Indicator
PC	Project Company
PPM	Planned Preventative Maintenance
PTW	Permit to Work
PV	Photo Voltaic
UNGP	United Nations Guiding Principles on Business and Human Rights

1. Introduction and Purpose

1.1. Introduction

Shire Oak International (Singapore) Pte. Ltd. ("Shire Oak") is developing, constructing, and operating a pipeline of solar rooftop projects in Vietnam and plans to expand to Indonesia in the coming year. The current development pipeline includes the following set of projects:

- 40-57 MW of commercial and industrial (C&I) solar rooftop projects in Vietnam (the "Initial Portfolio");
- 110 MW of C&I solar rooftop projects in Vietnam and Indonesia (the "Second Portfolio"); and
- 650-1,400 MW of additional projects in Southeast Asia (the "Future Pipeline").

The solar projects will be installed on the rooftops of existing C&I facilities, which are generally located in urban and industrial areas.

1.2. Purpose of Document

This document describes Shire Oak's construction stage Environmental and Social Management Plan (C-ESMP), which will be implemented during construction of the rooftop solar projects in Vietnam and Indonesia¹ (the "Projects"). It provides an overview of the key arrangements to be adopted for managing the health, safety, social and environmental (HSSE) issues, risks and impacts associated with the construction of the Projects. It is intended to help ensure that the Projects comply with all relevant requirements.

1.3. Objectives

The key objectives of this C-ESMP are to:

- Provide a single reference point for the key HSSE management and monitoring controls to be adopted during the project design, planning and construction phase.
- Provide input into the required content of more detailed and subject matter-specific management plans.
- Provide the basis for the management controls that will be implemented by the Environmental and Social Management System (ESMS) to be developed for the Project.

1.4. Scope

This C-ESMP applies to all activities to be undertaken during the construction phase including the project design, planning and pre-construction activities. It does not include operations, maintenance and decommissioning activities which will be managed through the implementation of the ESMS.

The scope is limited to general HSSE aspects of the construction phase. As required by this C-ESMP, a number of detailed management plans will be developed and implemented for specific HSSE subject matter.

The requirements contained herein apply to the activities of Shire Oak itself, and to all contractors, subcontractors, suppliers and service providers (i.e. third parties) conducting activities at the Project site and/or

¹ The Projects in Indonesia are currently at the planning stage and actions will be implemented as part of the Environmental and Social Action Plan (ESAP) prior to construction

on behalf of Shire Oak. Whilst Shire Oak may not be directly responsible for the activities of subcontractors and third parties, it remains ultimately accountable for the HSSE aspects of works undertaken on its behalf.

1.5. Structure of This Document

This C-ESMP is structured as follows:

Section	Title
Section 1	Introduction and Purpose
Section 2	Project Standards
Section 3	Project Description
Section 4	Roles, Responsibilities and Competencies
Section 5	Engagement, Communication and Grievances
Section 6	Management, Monitoring and Reporting

1.6. Cross References

This C-ESMP cross references with existing business processes, procedures and other documentation. These are listed below.

1.7. Reference Documents

Title
Environmental and Social Management System (ESMS)
Legal Register
Environmental and Social Action Plan
Communications Plan and GM
Community Development Programme
Gender Action Plan

1.8. Review

This C-ESMP and any associated documentation will be reviewed revised as required so that it remains relevant to site practices and activities and to reflect:

- Changes to laws and regulations.
- Changes in project policies and reporting procedures.
- Changes in project activities.

2. Project Standards

Shire Oak and its contractors are required to comply with a range of legal and regulatory requirements relating to health, safety, social, security and environmental management. These requirements are enforced by law and are established through legislation, permits, licences, contracts and legislated standards. The Project is also required to meet a number of international standards and good international industry practices.

This C-ESMP is intended to help ensure that such standards are met. Where standards are inconsistent or contradictory, Shire Oak shall apply the most stringent standard, unless otherwise justified to its stakeholders.

All legal, statutory and other requirements relevant to the Project shall be identified and documented in a legal register which forms part of the ESMS.

2.1. Company Policies

Shire Oak will adopt an HSSE Policy, which will apply to all activities carried out by or on behalf of Shire Oak, including those delivered by Shire Oak’s Contractors.

2.2. National Legislation

The Projects are subject to a range of legal and statutory requirements include those enshrined in Acts, Regulations, or Standards/Guidelines that are given regulatory status under the legislation and may be enacted at a local, regional, state, national or international level. A separate legal register will be prepared.

Permits are also required for the Projects and these are issued by Vietnamese and Indonesian regulatory authorities. Key permits to be complied with by the Projects and the contractors are listed in **Table 2-1** below. Contactors must ensure that all relevant environmental and social requirements of these permits are addressed and that any requirements arising from any revision/amendment of these permits is also applied.

Table 2-1 List of Applicable Permits – Vietnam

Project Phase	Title
Pre-construction phase	Subject to province laws, the following may be required: <ol style="list-style-type: none"> 1. Connection agreement from EVN 2. Fire Approval from Vietnam Fire and Rescue Police Department approval
Construction phase	No additional permits required.

Table 2-2 List of Applicable Permits – Indonesia

Project Phase	Title
Pre-construction phase	For Shire Oak: <ol style="list-style-type: none"> 1. Company registration certificate, known as TDP (<i>tanda daftar perusahaan</i>) issued in local regency and arranged by a notary as per the Ministry of Law and Human Rights 2. Taxpayer identification number known as NPWP (<i>nomor pokok wajib pajak</i>) granted by the Tax Service Office/ Directorate General of Tax

	<ol style="list-style-type: none"> 3. Certificate of domicile known as SKDP (<i>surat keterangan domisili perusahaan</i>) issued by a notary in the regency as per the Office of Regional Government 4. Business License from One Stop Service at Indonesian Investment Coordinating Board 5. Business Entity Certificate, known as SBU (<i>Sertifikat Badan Usaha</i>) from <i>Lembaga Pengembangan Jasa Konstruksi</i>/Institute for Development of Construction Services and KADIN/Indonesian Chamber of Commerce <p>For projects not feeding into PLN grid:</p> <ol style="list-style-type: none"> 1. Electricity business support licence, known as IUJPTL (<i>izin usaha ketenagalistrikan</i>) from Ministry of Energy and Mineral Resources
Construction phase	No additional permits required.

2.3. International Standards

The Projects are also required to comply with international standards relating to environmental and social risk (E&S) management. The international standards to be applied to the Projects are categorised as follows:

- Relevant international treaties and conventions ratified by [country].
- UN Declaration on the Rights of Indigenous Peoples, UN Guiding Principles on Business and Human Rights, International Covenant on Economic, Cultural and Social Rights and ILO Core Labour Standards
- IFC Performance Standards
- World Bank Group EHS Guidelines
- IFC Workers' Accommodation: Processes and Standards.
- Voluntary principles, standards and code of practice.
- Industry-specific technical standards, international best practice.

2.4. Other Requirements

- Contractual obligations agreed with investors.
- Agreements with government authorities, where required.
- Agreements with other external stakeholders e.g. community groups and non-governmental organizations (including for community development), where required.
- Any other additional project-specific standards adopted for the Projects.

3. Project Description

3.1. Overview

Shire Oak’s business involves the sale of electricity to commercial and industrial (C&I) clients by developing and constructing rooftop solar plants on clients’ facilities. It carries out its development and construction work through its subsidiary, Shire Oak Developers Pte Ltd, while it operates the projects through the portfolio/project companies: Shire Oak Green Asia Pte. Ltd. (“SOGA 1”) and Shire Oak Green Asia II Pte. Ltd. (“SOGA 2”).

3.2. Location of Projects

The Projects will be installed on the roofs of various existing manufacturing and warehouse facilities, which are mainly located within industrial areas close to capital cities in Vietnam and Indonesia (e.g. Ho Chi Minh city, Hanoi, Jakarta and Surabaya).

The location is shown in

Figure 3-1 below.

Figure 3-1 Location of Projects



3.3. Sponsors

Shire Oak is a Singapore-based renewable energy developer focused on developing distributed solar power projects in Southeast Asia.

The Climate Investor One (CI1) Managed Vehicles are focused solely on investments in renewable energy projects in emerging markets, with a primary focus on wind, solar and run-of-river projects.

3.4. Potential Environmental and Social Risks and Impacts

3.4.1 Environmental and Social Categorisation and Rationale

The E&S of the Projects has been classified as category B (medium to low risk) (in accordance with CI1's risk categorisation) which is equivalent to International Finance Corporation (IFC) Category B. This reflects the contextual risks around labour and health and safety issues in the South East Asia construction sector. Given the nature of the investment which comprises rooftop solar installations on existing office buildings and industrial complexes in urban areas, potential impacts will be minimal, site-specific, and readily managed/mitigated. environmental and social impact assessments (ESIAs) are not required given the nature of the Projects, and the limited potential adverse impacts.

The Projects will be managed according to the following IFC Performance Standards

- IFC Performance Standard 1: Assessment of Environmental and Social Risks and Impacts
- IFC Performance Standard 2: Labour and Working Conditions
- IFC Performance Standard 3: Resource Efficiency and Pollution Prevention
- IFC Performance Standard 4: Community Health, Safety and Security

The remaining IFC Performance Standards¹ are unlikely to be applicable and Shire Oak will carry out screening of each project as per the ESMS to confirm this. The Projects will not require land (an agreement is negotiated with the property owner for use of the roof) and therefore no physical and/or resettlement impacts are anticipated. Given the siting of panels on existing industrial and commercial buildings, impacts on biodiversity, indigenous peoples and cultural heritage are not anticipated from the Projects.

Shire Oak has a developing ESMS broadly in compliance with CIO's requirements, and will be further developed under the Environmental Social Action Plan (ESAP) and which will be monitored by CIO and continually improved.

The ESMS is to be the overarching document for Shire Oak's HSSE and is to be fully aligned with IFC PS1 requirements, including on the following: -

- Policies;
- Organisational capacity;
- Training Program;
- Site Screening/ Due Diligence;

¹ IFC Performance Standard 5 on Land Acquisition and Involuntary Resettlement; IFC Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources; IFC Performance Standard 7: Indigenous Peoples; and IFC Performance Standard 8: Cultural Heritage

- Management Programs;
- Contractor Management Program;
- Worker Grievance Mechanism;
- Communications and Grievance Mechanism; and
- Monitoring and Reporting Program.

The ESMP for the operation/maintenance and decommissioning phase will be developed as part of the ESMS.

3.4.2 Description of Risks and Impacts

Potential risks in pre-construction/construction, operation and decommissioning phases are described below and are similar across construction, operation and decommissioning.

Risks associated with health and safety (e.g., vehicles and driving, working at height, manual handling, noise, vibration, electrical hazards, etc.) and labour, particularly when contracting labour through third parties who may also engage workers from vulnerable groups will need to be managed. Shire Oak will place worker grievance mechanisms and mechanisms for ensuring appropriate standards for labour and working conditions in its labour supply chain are established and upheld.

Operating in the C&I business, Shire Oak has no direct control over the activities and the HSSE performance of the client facilities, but can be associated with violations or poor practices, especially if these relate to illegal or excluded activities, human rights violations or material environmental incidents. The ESMS will be further developed to include criteria, procedures and guidelines to be used when screening opportunities, plus specific standard wording to be used in contracts for safeguarding.

Given the nature of the Projects, the potential for harm to the environment is limited. During the operation stage, water will be required for washing of the panels and there will be disposal of waste required, including end-of-life PV panels. Ongoing management of these risks will be undertaken through implementation of the ESMS (and its management plans) and the ESAP.

There are unlikely to be community concerns with the Projects, which involve rooftop solar in private facilities in commercial and industrial areas in Indonesia and Vietnam. Shire Oak, however, will implement a communications plan and grievance mechanism as per the ESMS.

4. Roles, Responsibilities and Competencies

Delivery of the Project commitments referenced in this C-ESMP is the responsibility of Shire Oak and its contractors. Responsibilities for implementation of the specific Project requirements are detailed in the individual management plans.

4.1. Project Governance

Shire Oak is governed by the Project Management Committee. The Project Director reports to the Project Management Committee.

An ESG Committee/Working Group shall be set up and shall include members of the Sponsors.

4.2. Project HSSE Management

Shire Oak Chief Executive Officer (CEO) is ultimately accountable for the HSSE performance of the Project and for the implementation of this C-ESMP. The Head of Engineering is the designated management representative who has overall responsibility for the implementation of the C-ESMP and is appointed in this role by the Project Management Committee. The Head of Engineering reports to the CEO.

The Project HSSE Manager co-ordinates with the EPC Contractor to ensure that the requirements of this C-ESMP are complied with. The Project HSSE Manager reports to the Head of Engineering.

4.3. Company Roles and Responsibilities

Shire Oak responsibilities include supervising implementation of all proposed mitigation measures and monitoring which are undertaken by the EPC Contractor. If Shire Oak directly engages other contractors (other than the EPC Contractor), Shire Oak shall ensure that the mitigation measures are implemented by these parties. The mitigation measures should be followed by all parties involved in the construction process. Once the Project approaches Final Acceptance and Hand over Certificate Shire Oak will generally take sole responsibility.

4.4. Shire Oak Employees

All employees working for, or on behalf of the Project have a responsibility to ensure that they carry out their work in such a way that protects the environment. All employees should be aware of the requirements of this C-ESMP and understand their role in implementing it.

4.5. EPC Contractors

The EPC Contractors are responsible for making sure there is adequate and competent staffing to effectively manage and implement all environmental and social mitigation and monitoring measures as defined in this C-ESMP and associated management plans. This shall be achieved through a competent HSSE team to be appointed by the EPC Contractor. Where the EPC Contractor has engaged subcontractors to carry out some of the scope of work, the EPC Contractor is responsible for ensuring that its subcontractors comply with the E&S Requirements.

Requirements for the EPC Contractor and the subcontractors shall be defined in the relevant articles of their contracts and associated mandatory annexes. All contractors shall develop an HSSE Plan that shall be submitted to Shire Oak for approval, and each contractor shall be responsible for ensuring that its HSSE Plan is implemented. In addition, each contractor is required to ensure that it meets all subject-specific requirements

outlined in each management plan that is relevant to its scope of work. Contractors are also responsible for ensuring that any relevant subcontracted work meet these requirements.

4.6. Competency, Training and Awareness

Effective training is a key requirement for successful construction of the Project and contractor(s) will be required to identify staff training needs and provide appropriate training to all workers.

The EPC contractor shall develop a training needs assessment and training plan identifying all competency, training and awareness requirements that are considered necessary to comply with the Project's requirements. This training plan and the proposed training materials shall be compliant with the requirements detailed in the Shire Oak ESMS and shall be shared with Shire Oak if requested. Training records shall be kept by both Shire Oak and contractor(s).

5. Communications and Grievances

5.1. Internal Communication

The requirements of this C-ESMP shall be communicated to all Shire Oak employees as well as to the EPC Contractor. All workers at the Project site are required to adhere to the requirements this C-ESMP. The EPC Contractor is responsible for communicating these requirements to its subcontractors. Third parties shall be responsible for communicating the relevant requirements to their own workforce.

5.2. External Communication

Arrangements for external communication will be described in the Shire Oak's Communications Plan. Although the Project has limited stakeholders, relevant stakeholders will be identified in the Communications Plan, which will be designed in accordance with IFC PS1. Requirements for monitoring and reporting will be included.

5.3. Grievance Mechanism (GM)

5.3.1 Internal GRM

Shire Oak's Labour and Social Protection Plan will include a worker GM, which is to be followed by Shire Oak for managing, handling responding and escalating any grievances received from workers. The EPC contractor may establish its own internal GM or otherwise shall adopt that of Shire Oak. All sub-contractors shall adopt the GM used by the EPC Contractor. All contractors appointed directly by Shire Oak shall adopt the GM of Shire Oak.

5.3.2 External GM

Shire Oak's Communications Plan will include a GM, which is to be followed by Shire Oak to (i) receive and register external grievances from stakeholders, including the affected community; (ii) screen and assess the issues raised and determine how to address them; (iii) provide, track, and document responses; and (iv) provide access to remedy. The EPC Contractor and all other (sub)contractors shall also adopt the external GM.

6. Management, Monitoring and Reporting

6.1. HSSE Management and Performance Monitoring

Shire Oak requires all projects to be designed, planned and constructed in accordance with all relevant legal requirements and with international standards for HSSE management. Detailed and specific HSSE management plans will be established for each project. These plans shall be used as guidelines for the EPC Contractor to write its own plans and procedures which will explain in detail how the management, mitigation and monitoring actions will be implemented.

The plans provide detailed requirements on elements such as roles and responsibilities, equipment requirements, budget estimates, detailed monitoring parameters, monitoring methodology, monitoring dates/times (where applicable), monitoring frequency and monitoring locations, and reporting requirements. The list of management plans applicable to Shire Oak’s projects are listed in **Table 6-1** below.

Table 6-1 Detailed Management Plans

Plan Type	Plan Name
Environmental	Waste Management Transport and Traffic Management Emergency Preparedness and Response (<i>includes health and safety and social</i>)
Health & Safety	Occupational Health and Safety
Social and Labour	Communications and GM Human Resources Policy and Management Contractor Management

6.2. General HSSE Management and Monitoring Measures

In support of the above listed management plans, the general HSSE management and monitoring measures for all HSSE aspects of the Projects are detailed in **Table 6-2**. These set the minimum requirements to be adopted for the key HSSE aspects to be considered in the planning, design, pre-construction, and construction of all projects undertaken by Shire Oak.

The EPC Contractor will be responsible for the implementation of most of these measures. Where the EPC Contractor engages subcontractors to undertake all or part of the work scope, the EPC Contractor shall ensure that the mitigation measures are implemented by these parties.

If Shire Oak directly engages other contractors (other than the EPC Contractor), Shire Oak shall ensure that these management and monitoring measures are implemented appropriately. All measures shall be followed by all parties involved in the construction process.

Once the Project approaches the operation phase, the Project Owner will generally take sole responsibility for the ongoing management and monitoring of HSSE compliance and performance. This C-ESMP does not include measures relating to the operating phase; these will be established separately as part of the ESMS.

6.3. Monitoring Activities

Monitoring is a means of verifying overall effectiveness of the management and mitigation measures contained within the management plans listed above. Key objectives of the monitoring process include:

- Verification of the effectiveness of management and mitigation measures.
- Compliance with Applicable Standards (i.e. country regulatory standards, IFC Performance Standards and IFC EHS Guidelines).
- Development of adaptive management measures to account for changes in HSSE status, potential changes to the Project schedule and/or non-planned events.
- Monitoring the status of, and impacts on workers, the general public, and the environment.
- Provision of early warning that a control measure is ineffective or failing to achieve the desired performance so that changes can be implemented to address the issue.
- Provision of a basis for continual review and improvements.

6.4. Compliance Monitoring

Shire Oak will audit contractor performance in line with Project audit procedures as outlined in the ESMS. In addition to contractor audits and the audits led by Shire Oak the Project will also be subjected to regulatory audits and lender compliance monitoring visits and these may include an assessment of compliance with this C-ESMP and associated management plans. All contractors shall document their approach to monitoring compliance with the requirements of this C-ESMP and associated management plans.

6.5. Key Performance Indicators

Key Performance Indicators (KPI) are quantitative or qualitative measurements used to gauge performance over time. They can be used to assess the effectiveness of control measures and demonstrate performance improvements during steady state operations. Relevant KPIs are presented in each management plan. Where appropriate, Shire Oak shall set minimum environmental and social standards and associated threshold values (e.g. using legal standards and/or international standards) for measuring HSSE performance.

6.6. Non-Conformances and Corrective Action

Non-conformances and progress on associated corrective actions will be identified, recorded and managed in line with Shire Oak's ESMS procedures and action tracking system.

6.7. Reporting

Shire Oak shall submit performance monitoring reports (including EPC Contractor data) to CI1 in accordance with the requirements of the ESAP and Shire Oak's ESMS.

The ESAP will be implemented within three months of financial close and will include the following timebound actions: -

- Further developing and implementing the ESMS as described in Section 3.4;
- Update the Shire Oak policies and processes to include country-specific requirements for employing staff in Indonesia.;
- Update to the worker grievance mechanism to include a channel for anonymous grievances and extend the scope to cover contracted workers;
- Include an external stakeholder grievance mechanism on the website in English, Vietnamese and Indonesian;
- Recruit additional personnel responsible for management and oversight of HSSE;
- Hire a consultant to undertake an audit of the implementation of the ESMS and ESAP;

- Develop and implement a gender action plan; and
- Develop and implement a community development programme in line with the agreed budgets.

Table 6-2 Construction HSSE Management and Monitoring Requirements

Activity	Potential Risk	Ref.	Management Measure	Responsibility	Means of Verification	Project Phase
1.0 Management Systems and Processes						
1.1 – Management of HSSE impacts and risks	Risk of non-compliances with legal and other requirements due to inadequate or lacking governance	1.1.1	Develop and communicate to all staff, contractors and third parties an HSSE policy that details Shire Oak’s commitments and arrangements for managing HSSE impacts and risks.	Shire Oak	Management system manual	Project design and planning
		1.1.2	Develop and implement an integrated management system for management of HSSE impacts and risks.	Shire Oak	Audit and inspection reports	Project design and planning
		1.1.3	As part of the HSSE Management System, develop a documented procedure for HSSE risk identification and assessment which includes among other aspects, provisions for human rights, gender equality and women’s empowerment and supply chain.	Shire Oak	Risk assessment and management procedure	Project design and planning
		1.1.4	Develop and implement a formal HSSE training programme that provides specific training requirements for Shire Oak employees and contractors in order to comply with local legislation and the requirements of this C-ESMP.	Shire Oak	Training programme, training records	Project planning, construction
		1.1.5	Request that the facility provides the relevant permits as part of the due diligence: <ul style="list-style-type: none"> i. Fire safety permit; ii. Construction permit from the Department of Construction (for existing facility); and iii. Relevant water and wastewater permits (e.g. water extraction permit (for groundwater abstraction) or water supply agreement with local water service company; wastewater discharge permit (for facilities which discharge >5 m3/day to watercourses). 	Shire Oak	Copies of permits	Project design and planning
		1.1.6	For Indonesia: Check the EPC Contractor has the primary construction licence, known as IUJK PMA (<i>izin usaha jasa konstruksi badan dalam rangka penanaman modal asing</i>), which is overseen by the Ministry of Public Works and Public Housing	Shire Oak	Copies of permit	Project design and planning (Indonesia)
		1.1.7	Monitor compliance against the management system through periodic audits and inspections.	Shire Oak	Audit and inspection reports	Construction

Activity	Potential Risk	Ref.	Management Measure	Responsibility	Means of Verification	Project Phase
2.0 Communications and Stakeholders						
2.1 - Stakeholder Engagement	Project activities may have adverse impacts on external stakeholders	2.1.1	Develop and implement a communications plan, which identifies stakeholders and provides a framework for engagement.	Shire Oak	Framework document	Project design and planning
		2.1.2	Implement a GM and include this on the website and at Project locations.	Shire Oak	Documented GM, grievance log	Construction
3.0 Labour and Working Conditions						
3.1 - Human Resources (HR) Management	Human rights violations associated with failure to comply with legal requirements and international labour standards	3.1.1	Develop and implement an HR policy. This shall be communicated to all workers in local language and through training.	Shire Oak	Documented policy	Project design and planning
		3.1.2	Develop and implement an HR Management Plan which includes arrangements covering (but not limited to): (i) non-discrimination; (ii) working hours, overtime (if relevant) and rest periods; (iii) remuneration for normal working hours and overtime; (iv) annual leave; (v) employee benefits; (vi) rules regarding collective bargaining and association; (vii) promotion, probation and performance appraisals; (viii) training programmes; (ix) disciplinary process; and (x) dismissal, termination of employment, severance pay and special severance pay.	Shire Oak	Documented management plan	Project design and planning
		3.1.3	Prepare written contracts for all workers ³ that reflect the provisions of the HR Management Plan and communicate to them the terms and conditions of their employment.	Shire Oak	Written contracts	Pre-construction
		3.1.4	Conduct due diligence assessments of Shire Oak's primary suppliers of labour and materials prior to entering into contracts. This includes third party suppliers of agency staff; EPC contractors and their supply chain, and suppliers of equipment (e.g. PV panels) to check for risks associated with human rights, child labour and forced labour.	Shire Oak	Documented assessments	Pre-construction

³ This includes full-time and part-time employees on permanent contracts; fixed term and temporary workers hired directly by Shire Oak, and workers hired directly by Shire Oak through a third party.

Activity	Potential Risk	Ref.	Management Measure	Responsibility	Means of Verification	Project Phase
		3.1.6	Implement a GM for all of Shire Oak’s directly employed workers and communicate to workers how to access and use this.	Shire Oak	Documented GM, communication records	Construction
		3.1.7	Implement a Contractor Management Plan that details Shire Oak’s requirements regarding labour and working conditions to be met by all contractors working for and on behalf of Shire Oak.	Shire Oak	Management plan	Design and planning
		3.1.8	During the bidding stage for the EPC Contractor, clearly communicate the requirements regarding labour and working conditions and include these in contract documentation.	Shire Oak	Records of communication	Design and planning
		3.1.9	Include a commitment in the EPC contract requiring the use of local labour as well as other goods and services, where possible.	Shire Oak	EPC contract document	Design and planning
		3.1.10	Where accommodation is provided to workers, implement a worker accommodation management plan in line with IFC Worker Accommodation Guidelines and monitor compliance against it.	EPC Contractor	Documented plan, monitoring records	Design and planning, construction
3.2 - Employment of local/migrant workers by the EPC Contractor during construction activities	Potentially vulnerable workers (e.g. unskilled; migrant, and/or third-party employees) in the supply chain may be exposed to weakly enforced labour and working standards	3.2.1	Include the requirements of Shire Oak’s Contractor Management Plan in contracts for all local and migrant workers hired to work on Shire Oak’s projects.	EPC Contractor	EPC contract document	Design and planning
		3.2.2	Prepare written contracts for all workers appointed directly or by sub-contractors which are aligned with the provisions of Shire Oak’s HR Management Plan.	EPC Contractor	Written contracts	Construction
		3.2.3	Adopt the Shire Oak worker GM or otherwise to implement a separate one which is designed and managed to the same standard and communicate this to all workers.	EPC Contractor	Documented GM, records of communication	Construction
		3.2.4	Communicate to all workers the terms and conditions in contracts.	EPC Contractor	Communication records	Construction
		3.2.5	Monitor sub-contractors to detect any risks of non-compliance with labour requirements as well as those of all applicable laws.	EPC Contractor	Monitoring records	Construction
	Risk of child labour on site, which can have serious health and	3.2.6	Do not allow any under 18-year-old person to be engaged, employed directly or indirectly at any projects. Ensure this is communicated to all subcontractors.	EPC Contractor	Communication and monitoring records	Construction

Activity	Potential Risk	Ref.	Management Measure	Responsibility	Means of Verification	Project Phase
	safety impacts and reputation risks	3.2.7	Obtain proof of age of all workers and maintain records, which shall be available for audit.	EPC Contractor	Worker i.d. documents	Construction
3.3 - Procurement of local labour, goods and supplies	Potential for positive benefits to local businesses and communities	3.3.1	Communicate information about Project-related employment and business opportunities to local communities and prioritise local people wherever feasible.	EPC Contractor	Communication records	Construction
		3.3.2	Where possible, source goods and services locally.	EPC Contractor	Documented plan	Construction
		3.3.3	Where possible, provide capacity building activities including skills improvement training for local labour force to enable them to access future job opportunities.	EPC Contractor	Training records	Construction
4.0 Occupational Health and Safety						
4.1 – Site-based construction activities	Exposure to health and safety risks during activities relating to vehicles and driving, working at height, manual handling, noise, vibration, electrical hazards	4.1.1	Implement an Occupational Health and Safety Management Plan to prevent accidents, injury, illness and disease and monitor implementation by contractors.	EPC Contractor	Documented plan	Construction
		4.1.2	Conduct all work in accordance with documented method statements which have been approved in advance by Shire Oak.	EPC Contractor	Documented method statements	Construction
		4.1.3	Implement a permit to work (PTW) system for all high risk activities including but not limited to: (i) working at height; (ii) lifting operations; (iii) hot work; (iv) work on energized systems, and/or (v) ground disturbance in locations where buried hazards may exist.	EPC Contractor	Documented PTW system, completed permits	Construction
		4.1.4	Conduct regular refresher training, toolbox talks, and other communication campaigns to maintain awareness of health and safety risks and controls.	EPC Contractor	Training records	Construction
		4.1.5	Conduct ongoing monitoring of HSSE performance through daily site inspections.	EPC Contractor	Inspection records	Construction
		4.1.6	Conduct ongoing monitoring of HSSE performance through weekly site inspections.	Shire Oak	Inspection records	Construction

Activity	Potential Risk	Ref.	Management Measure	Responsibility	Means of Verification	Project Phase
		4.1.7	<p>Ensure that all workers and visitors to project sites wear long legged pants which extend below the top of the safety boots and provide the following PPE for all personnel and visitors:</p> <ul style="list-style-type: none"> • Safety Boots - boots which extend above the ankle and which have a steel or composite toe and midsole. • Hard Hats - ANSI (American National Standards Institute), ISEA (International Safety Equipment Association) or similar rated construction hard hat. Construction hard hats must have a brim or lip extending above the eyes of the wearer. • High Visibility Vest - ANSI, ISEA or similar florescent vest or similar clothing. • Safety Goggles/Glasses - ANSI, ISEA or similar “wrap around” safety glasses which protect the eyes in all directions. 	EPC Contractor	Inspection records, inventory of PPE	Construction
		4.1.8	<p>Provide the additional items of PPE as determined on the basis of a risk assessment and to comply with legal requirements for job-specific work activities:</p> <ul style="list-style-type: none"> • Hearing Protection - ANSI, ISEA or similar which will reduce audible noise levels to that prescribed by local (or international) prescribed levels. • Fall Arrest Harness - Approved fall arrest harness and associated devices to be worn when persons are working at height or when there is a risk of fall. • Face Shield - To be used when handling liquids such as caustic soda or acids or applying herbicides etc. or for grinding, cutting or welding. • Flame Retardant Clothing/Aprons - To be used when cutting, grinding or welding. • Chemical Resistant Nitrite Gloves - To be used when where there is a risk of acid or caustic material splashing on hands. • Sunscreen/sun hat/breathable face covers - To be used on exposed skin to protect against burns from UV (ultraviolet radiation). • General Purpose/ Riggers Gloves - These gloves are to be used where there is a risk of the hands being cut or receiving abrasions. 	EPC Contractor	Inspection records, inventory of PPE	Construction

Activity	Potential Risk	Ref.	Management Measure	Responsibility	Means of Verification	Project Phase
			<ul style="list-style-type: none"> Dust Masks - A Dust mask is to be worn in dusty atmospheres or working with airborne particulates. 			
4.2 – Fire Safety	Exposure to fire risks at the facility	4.2.1	Verify that the existing firefighting system fully complies with the fire prevention and fighting law and regulations (refer to Appendix A).	Shire Oak	Firefighting certificate of the facility	Design/ Planning
		4.2.2	Appraisal of Fire Prevention and Fighting Design is required for rooftop solar power systems installed on 12 facility categories listed in Annex IV of Decree No. 79/2014/ND-CP prior to operation (refer to Appendix A).	Shire Oak	Appraisal from Fire Police or confirmation not required	Design/ Planning
5.0 Workplace Welfare						
5.1 – Provision of healthy work environment	Potential for ill health due to poor welfare facilities on site	5.1.1	Ensure access to clean and accessible sanitary facilities with handwashing facilities which include clean water and soap. Separate facilities shall be provided for males and females.	EPC Contractor	Inspection records	Construction
		5.1.2	Provide unlimited safe drinking water to all workers of a quality that is certified to conform to World Health Organisation (WHO) drinking water quality standard.	EPC Contractor	Inspection records, laboratory analysis	Construction
		5.1.3	In case water is sourced from regular taps, boreholes or an indirect source (e.g. by water tanker), ensure it is appropriately tested before consumption to confirm it meets the WHO quality standard for drinking water.	EPC Contractor	Laboratory analysis certificates	Construction
6.0 Noise and Vibration						
7.1 - Noise and Vibration associated with construction work	Exposure of workers to noise and vibration hazards	6.1.1	Operate a PPM regime to keep equipment in good working order.	EPC Contractor	PPM records	Construction
		6.1.2	Ensure the noise emitted by equipment does not exceed 85 dB(A) at 1 m from the source, which is in line with international standards and Vietnamese standards.	EPC Contractor	Noise monitoring records	Construction
		6.1.3	Ensure lubrication of equipment.	EPC Contractor	Inspection records	Construction
	Noise nuisance impacts on	6.1.4	Noise levels at the project boundary shall not exceed whichever is the more stringent of either the legally defined limits or the IFC limits as	EPC Contractor	Noise monitoring records, grievance log	Construction

Activity	Potential Risk	Ref.	Management Measure	Responsibility	Means of Verification	Project Phase
	neighbouring land users/communities		defined in the General EHS Guidelines ⁴ or otherwise result in a maximum increase in background levels of 3 dB at the nearest receptor location off-site.			
		6.1.5	Project related activities (including transport to and from the site) shall be avoided during the IFC night-time hours (i.e. 22.00-07:00 hrs) and activities which generate elevated noise levels shall be avoided after 18:00 hrs.	EPC Contractor	Noise monitoring records, grievance log	Construction
		6.1.6	Machinery and construction equipment that may be in intermittent use shall be shut down during non-work periods.	EPC Contractor	Inspection records, grievance log	Construction
		6.1.7	Vehicle horns shall only be used when necessary (i.e. to avoid accident).	EPC Contractor	Grievance log	Construction
		6.1.8	Heavy vehicles shall be driven at a consistent low speed on local roads to avoid noise from heavy braking.	EPC Contractor	Grievance log	Construction
7.0 Hazardous Materials						
8.1 – Transport of hazardous materials	Impacts to public health in the event of a spill on a public road; impacts to worker H&S, environmental impact	7.1.1	Include the transport of hazardous materials (e.g. diesel oil) in a Transport Management Plan and communicate this to drivers of vehicles contained hazardous materials.	EPC Contractor	Communication records, grievance log	Construction
		7.1.2	The carriage of hazardous materials must be compliant with an approved H&S management plan which all transport workers/companies shall be made aware of.	EPC Contractor	Inspection reports	Construction
		7.1.3	Appropriate PPE (at a minimum safety boots or shoes) must be used when unloading hazardous materials from delivery vehicles. This also applies to third party delivery drivers.	EPC Contractor	Inspection reports	Construction

⁴ For reference the IFC limits are: for land uses defined as residential, institutional or educational: 55 dB(A) (day time: 07:00-22:00) and 45 dB(A) (night time: 22:00-07:00) and for industrial or commercial land uses: 70 dB(A) (both day and night time).

Activity	Potential Risk	Ref.	Management Measure	Responsibility	Means of Verification	Project Phase
		7.1.4	A list of approved materials shall be made available at the site and shall be checked in relation to all deliveries. No unapproved materials shall be accepted.	EPC Contractor	Approved materials list	Construction
		7.1.5	Only trained and competent personnel shall be responsible for checking and accepting deliveries of hazardous materials to the Project site.	EPC Contractor	Training records	Construction
8.2 - Storage, handling, and use of hazardous materials	Impacts to worker H&S, soil and water contamination	7.2.1	Implement a hazardous materials management plan and monitor compliance against it.	EPC Contractor	Inspection reports	Construction
		7.2.2	Prepare risk assessments for the safe storage, handling and use of hazardous materials and communicate these to all workers as appropriate.	EPC Contractor	Risk assessments	Construction
		7.2.3	Prepare an inventory of hazardous materials and their storage location(s) and keep this inventory up to date. Store incompatible substances separately from each other.	EPC Contractor	Inventory of materials	Construction
		7.2.4	Designate a secure materials storage area into which access is restricted only to authorised (i.e. trained) personnel.	EPC Contractor	Inspection reports	Construction
		7.2.5	Ensure the storage area is sheltered from direct sunlight and sources of heat, protected from rain ingress, and adequately ventilated to prevent accumulation of gases, vapours.	EPC Contractor	Inspection reports	Construction
		7.2.6	Check that hazardous material storage containers are suitable for the contents and are labelled with the contents and any hazard symbols.	EPC Contractor	Inspection reports	Construction
		7.2.7	Locate and use diesel generators and bowsers in bunded areas or otherwise they must be self-bunded to prevent spills or leaks onto the ground.	EPC Contractor	Inspection reports	Construction
		7.2.8	Provide project workers with training and information relating to the content of the risk assessments and the emergency response measures.	EPC Contractor	Training records	Construction
		7.2.9	Conduct weekly site inspections, including on all storage locations, equipment, machinery, and fuel tanks (e.g. to check for leaks of fuel oil).	EPC Contractor	Inspection reports	Construction
8.0	Waste Management					

Activity	Potential Risk	Ref.	Management Measure	Responsibility	Means of Verification	Project Phase
9.1 – Handling, storage and disposal of waste	Soil and water contamination; negative impacts to worker and public health, environmental harm	8.1.1	Ensure that no unauthorized dumping (either on or off site) of used oil and other hazardous waste is undertaken and immediately address any evidence of non-compliance.	EPC Contractor	Inspection reports, grievance log	Construction
		8.1.2	Do not burn any wastes on site.	EPC Contractor	Inspection reports, grievance log	Construction
		8.1.3	Segregate hazardous and non-hazardous wastes into separate containers and clearly label each container.	EPC Contractor	Inspection reports	Construction
		8.1.4	Segregate non-hazardous wastes into recyclable and non-recyclable materials.	EPC Contractor	Inspection reports	Construction
		8.1.5	Store all wastes in a designated area and in suitable containers that are covered to prevent the escape of waste.	EPC Contractor	Inspection reports	Construction
		8.1.6	Arrange for wastes to be collected and disposed of by suitably licensed contractors.	EPC Contractor	Copies of licences	Construction
		8.1.7	Maintain a logbook detailing the types and volumes of waste generated and retain waste transfer records for all waste taken off-site for disposal.	EPC Contractor	Waste log	Construction
		8.1.8	Conduct weekly site inspections of all waste storage areas to check that good housekeeping standards are maintained and to identify any leaks or spills needing to be addressed.	EPC Contractor	Inspection reports	Construction
		8.1.9	Establish arrangements to recycle damaged/malfunctioning/end of life solar panels through an approved 'take back' programme for PV manufacturers. These arrangements should include guarantee and insurance and should be undertaken in accordance with GIIP.	EPC Contractor	Waste consignment notes, insurances and guarantees	Construction
9.0 Water and Wastewater Management						
10.1 - Water use for construction, O&M and decom. activities	Increased stress on water resources; possible impacts on other water users in the catchment	9.1.1	Incorporate water conservation measures into the project design e.g., rainwater harvesting at the project site. Identify methods of water reuse and recycling on site.	EPC Contractor	Engineering design	Design
		9.1.2	Design the project with options for dry and semi dry module cleaning techniques to reduce overall water demand for the project during operation phase.	EPC Contractor	Engineering design	Design

Activity	Potential Risk	Ref.	Management Measure	Responsibility	Means of Verification	Project Phase
		9.1.3	Implement a water management plan and monitor compliance against it.	EPC Contractor	Documented plan, monitoring records	Construction
		9.1.4	Only use water which is provided from authorised sources or suppliers (if tankers are used).	EPC Contractor	Permit or licence	Construction
		9.1.5	Monitor water usage during all phases and minimise the amount used as much as possible.	EPC Contractor	Logbook of water use	Construction
10.2 – Disposal of Wastewater	Unsafe discharge of wastewater may have negative impacts on environmental and human health	9.2.1	Confirm legal requirements and obtain any necessary permits or licences for the safe discharge of wastewater to the drainage network and/or the environment.	EPC Contractor	Inspection reports	Construction
		9.2.2	If the wastewater is known or suspected to be contaminated with any hazardous substances (e.g. solvents, paint thinners, oil) arrange for the wastewater to be disposed of as a liquid hazardous waste.	EPC Contractor	Waste transfer/disposal documentation	Construction
10.0 Air Quality Management						
11.1 - Emissions from construction activities, from road transport, and from operation of plant and equipment	Adverse impact on local air quality; harm to worker and community health	10.1.1	Limit the speed of vehicles on local hamlet/village roads to 10-15 km/hr.	EPC Contractor	Grievance log	Construction
		10.1.2	Plan all vehicle movement through hamlets/villages to avoid busy times (e.g. when children are going to and from school) to reduce traffic congestion and reduce risk of accidents.	EPC Contractor	Inspection reports, grievance log	Construction
		10.1.3	Do not leave vehicles idling (stopped with the ignition turned on) and switch off machinery and equipment when not in use.	EPC Contractor	Inspection reports	Construction
		10.1.4	All trucks carrying materials to/from the site shall be covered.	EPC Contractor	Inspection reports, grievance log	Construction
		10.1.5	Use modern equipment that uses low sulphur fuel and do not emit black smoke.	EPC Contractor	Inspection reports	Construction
		10.1.6	Operate a PPM regime to keep equipment in good working order.	EPC Contractor	Inspection reports	Construction
11.0 Unplanned Events						
12.1 – Unplanned	Unplanned events that have the potential to cause	11.1.1	Develop an emergency response plan all potential emergency situations (e.g. fire, environmental spill, H&S incident/accident relating to workers and/or the community).	EPC Contractor	Documented plan	Construction

Activity	Potential Risk	Ref.	Management Measure	Responsibility	Means of Verification	Project Phase
events during construction	harm or injury to workers and/or the public and environmental damage	11.1.2	Procure fire extinguishers and make sure these are readily accessible in the work area including near to where hazardous materials are stored/used.	EPC Contractor	Equipment inventory	Construction
		11.1.3	Provide spill kits in areas where hazardous materials and hazardous wastes are stored for use in the event of an accidental spill or release.	EPC Contractor	Accident/ incident log	Pre-construction
		11.1.4	Establish and train an emergency response team for the key hazards such as: fire, first aid, environmental spill.	EPC Contractor	Training records	Construction
		11.1.5	Ensure that there is always one trained first aider at site and that there is a fully stocked first aid box available.	EPC Contractor	First aid certificate, audits of first aid box	Construction
		11.1.6	Conduct emergency response drills at least once per month.	EPC Contractor	Log of drills	Construction
		11.1.7	Keep up to date information available in local language and using pictures to convey the key actions to take in an emergency, along with the emergency points of contact.	EPC Contractor	Inspection records	Construction

