



Nur Bukhara Solar PV

Environmental & Social Impact Assessment (ESIA): Volume IV – Environmental & Social Management Plan (ESMP)

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List of Abbreviations

Acronym	Definition
A&E	Accident and Emergency
ABIS	Amu-Bukhara Irrigation System
ADB	Asian Development Bank
AIS	Air-Insulated Switchgear
AOI	Area of Influence
BESS	Battery Energy Storage System
BMP	Biodiversity Management Plan
CC	Civil Code
CEMP	Construction Environmental Management Plan
C-ESMP	Construction Environmental and Social Management Plan
CHS	Community Health and Safety
CLO	Community Liaison Officer
COD	Commercial Operation Date
E&S	Environmental and Social
EBRD	European Bank for Reconstruction and Development
EHS	Environment, Health and Safety
EIA	Environmental Impact Assessment
EPC	Engineering, Procurement and Construction
EPRP	Emergency Preparedness and Response Plan
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
ESP	Environmental and Social Policy
EU	European Union
FC	Financial Close
GBVH	Gender-Based Violence & Harassment
GIIP	Good International Industry Practice

Acronym	Definition
GM	Grievance mechanism
H&S	Health and Safety
HMWWP	Hazardous Materials, Waste and Wastewater Management Plan
HR	Human Resources
IFC	International Finance Corporation
ILO	International Labour Organization
IUCN	International Union for Conservation of Nature
JE	Juru Energy
LWCMP	Labor and Working Conditions Management Plan
LC	Land Code
LILO	Line-in Line out
LRP	Livelihood Restoration Plan
LV	Low voltage
MCC	Makhalla Community Council
MNR	Ministry of Natural Resources
MSDS	Material Safety Data Sheets
MV	Medium voltage
NSR	Noise Sensitive Receptors
NTP	Notice to Proceed
NTS	Non-Technical Summary
O&M	Operations and Maintenance
O-ESMP	Operations Environmental and Social Management Plan
OHS	Occupational Health and Safety
OHSMP	Occupational Health and Safety Management Plan
OHTL	Overhead Transmission Line
OMMP	Operational Management and Monitoring Plan
PIT	Project Implementation Team
PPE	Personal Protective Equipment

Acronym	Definition
PR	Performance Requirement
PV	Photovoltaic
ROW	Right of Way
SanPiN	Sanitary Regulations and Norms of Uzbekistan
SMP	Security Management Plan
SCRP	Site Clearance and Rehabilitation Plan
SEP	Stakeholder Engagement Plan
SMzP	Site Mobilization Plan
SWID	State Committee for Sericulture and Wool Industry Development
SWMP	Solid Waste Management Plan
SSMP	Subcontractors and Suppliers Management Plan
TrMP	Training Management Plan
TTMP	Traffic and Transportation Management Plan
UNCCD	United Nations Convention to Combat Desertification
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
WAMP	Worker Accommodation Management Plan
WBG	World Bank Group
WMP	Water Management Plan

1 Introduction

1.1 Background

The Nur Bukhara Solar Photovoltaic (PV) Project with a capacity of 250 MW_A and a 63 MW/126 MWh Battery Energy Storage System ("Project"). The Project includes a 30 m line-in-line-out (LILO) overhead line (OHTL) to connect the Project's new substation to an existing OHTL (requiring an upgrade to approximately 300m of existing OHTL). There are no associated facilities for the Project as defined by Lender standards. The Project will support Uzbekistan to:

- Add 250 MW of power supply to the national grid.
- Reduce energy dependence on carbon-based fuels.
- Meet renewable energy targets.
- Reduce greenhouse gas emission rates.

1.2 Scope of the ESMP

The following topics are addressed in the ESMP for the construction, operation and decommissioning phases.

Table 1: Summary of topics addressed in the ESMP

Environment	Social (including labour)
<ul style="list-style-type: none"> ● Climate resilience ● Supply chain (construction) ● Air quality - dust/fugitive (construction and decommissioning) ● Noise (construction and decommissioning) ● Site clearance, including habitat clearance (construction and decommissioning) ● Hazardous material handling (construction, operation and decommissioning) ● Waste (including hazardous waste) (construction, operation, and decommissioning) ● Wastewater discharges (construction and decommissioning) 	<ul style="list-style-type: none"> ● Employment (including local content policy) (construction, operation and decommissioning) ● Labour welfare (including the welfare of sub-contractors, casual workers and migrant workers) (construction, operation and decommissioning) ● Supply chain management (construction, operation and decommissioning) ● Occupational health and safety (construction, operation and decommissioning) ● Community health and safety specifically traffic safety, GBVH, and communicable diseases) (construction, operation, and decommissioning) ● Security and security force management (construction, operation and decommissioning)

Environment	Social (including labour)
<ul style="list-style-type: none"> ● Water use and water efficiency (construction and operation, and decommissioning) ● Traffic and transportation (construction and decommissioning) ● Pollution prevention (e.g., discharges to groundwater or land) (construction and decommissioning) 	<ul style="list-style-type: none"> ● Emergency preparedness (construction, operation and decommissioning) ● Accommodation management (as applicable) following IFC / EBRD guidance note: Accommodation: Processes and Standards (Guidance Note by IFC and EBRD, 2009 (construction))

1.3 The objective of the ESMP

The objective of this environmental and social management plan (ESMP) is to provide a framework to safeguard the environment and community against activity which may cause harm or nuisance, as identified during the ESIA process. The ESMP includes the following:

- Requirements for an environment and social management system (ESMS) aligned with ISO14001 to address impacts on sensitive receptors and related potential E&S impacts due to Project activities as identified in the ESIA, including requirements for:
 - key staffing and responsibility
 - organization and responsibilities
 - training and awareness
 - emergency procedures and response.
 - record keeping
 - performance monitoring, reporting and auditing
 - subcontractor management.
- Objectives for the Project Company and Engineering, Procurement and Construction (EPC) Contractor ESMS.
- Mitigation measures to reduce or reverse adverse impacts and enhancement measures that increase or distribute more equitably positive impacts.
- Monitoring activities for the construction and operation phases along with implementation arrangements that detail responsibility, schedule targets, key indicators and budget needs.

The ESMP is structured as follows:

- Chapter 2: Project overview
- Chapter 3: Regulatory framework
- Chapter 4: Organizational framework
- Chapter 5: Environmental and social management requirements
- Chapter 6: Mitigation and management requirements
- Chapter 7: Monitoring and reporting
- Chapter 8: Stakeholder engagement
- Chapter 9: Grievance mechanism
- Chapter 10: Budget
- Annex A: Project E&S Policy

2 Project Overview

2.1 Project location

The Project will be located on a site allocated by the Ministry of Energy through a competitive auction process and covers approximately 649ha of land in the Alat District of the Bukhara region in the southwest of the Republic of Uzbekistan. The Site is 24 km southeast of Alat City, approximately 25 km northwest of the border with Turkmenistan. The Site is flat and is surrounded by the ABIS canal to the North, South and East. The regional road R78 runs alongside the Site's northern boundary, and there are drainage channels and ponds approximately one kilometre to the West of the Site. The Khamza 1 substation is located 1 km to the North of the Site, and the Khamza 2 substation is located 1 km to the South of the Site.

The Project area is located within the Kyzylkum desert ecoregion, and the land is intermittently used for pasturing purposes. The following figures show where the Project is located in Uzbekistan (Figure 1), the Project site (Figure 2), how the solar panels will be laid out on the Site (Figure 3) and key receptors (Figure 4).

Figure 1: Project location

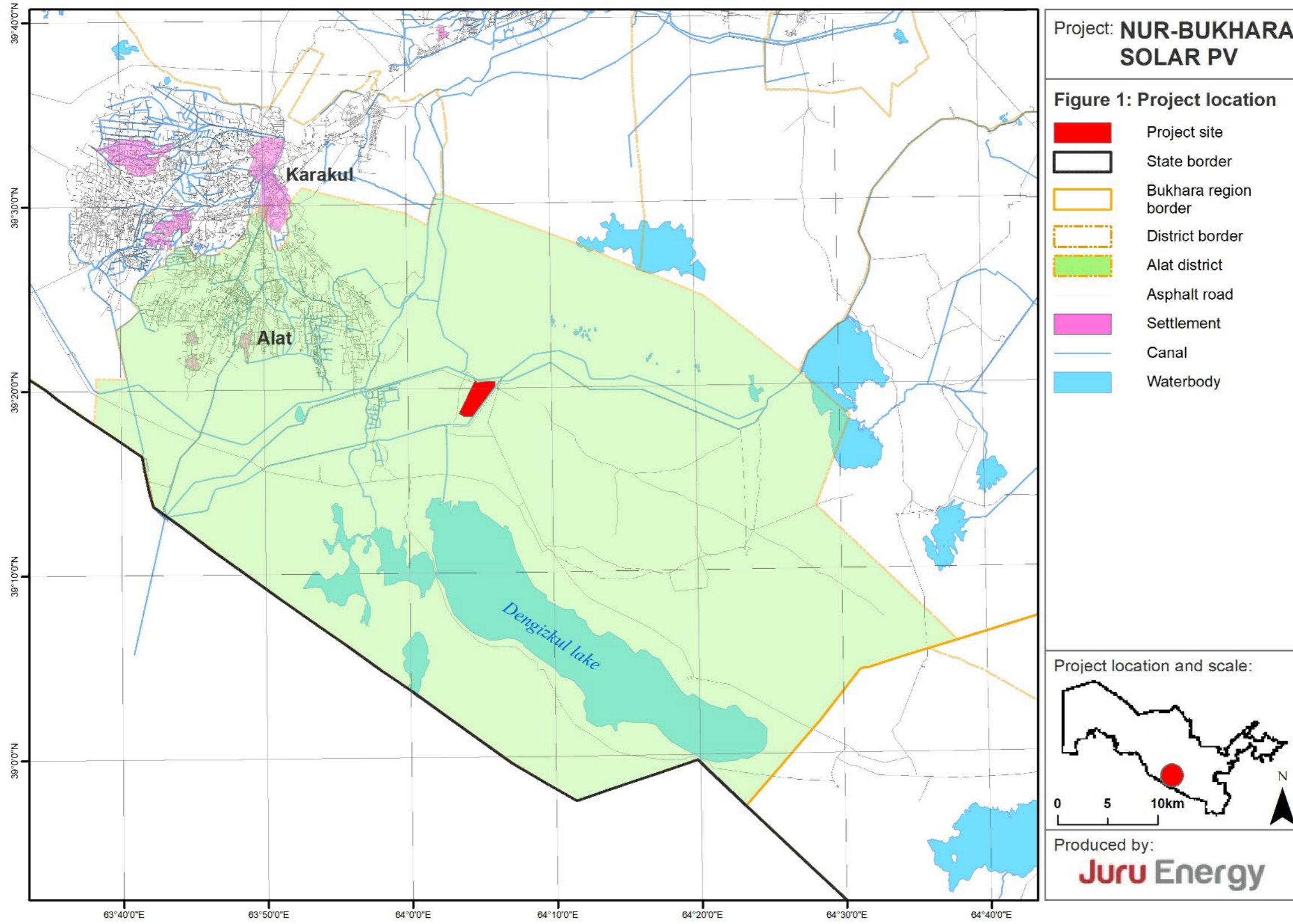


Figure 2: Project boundary

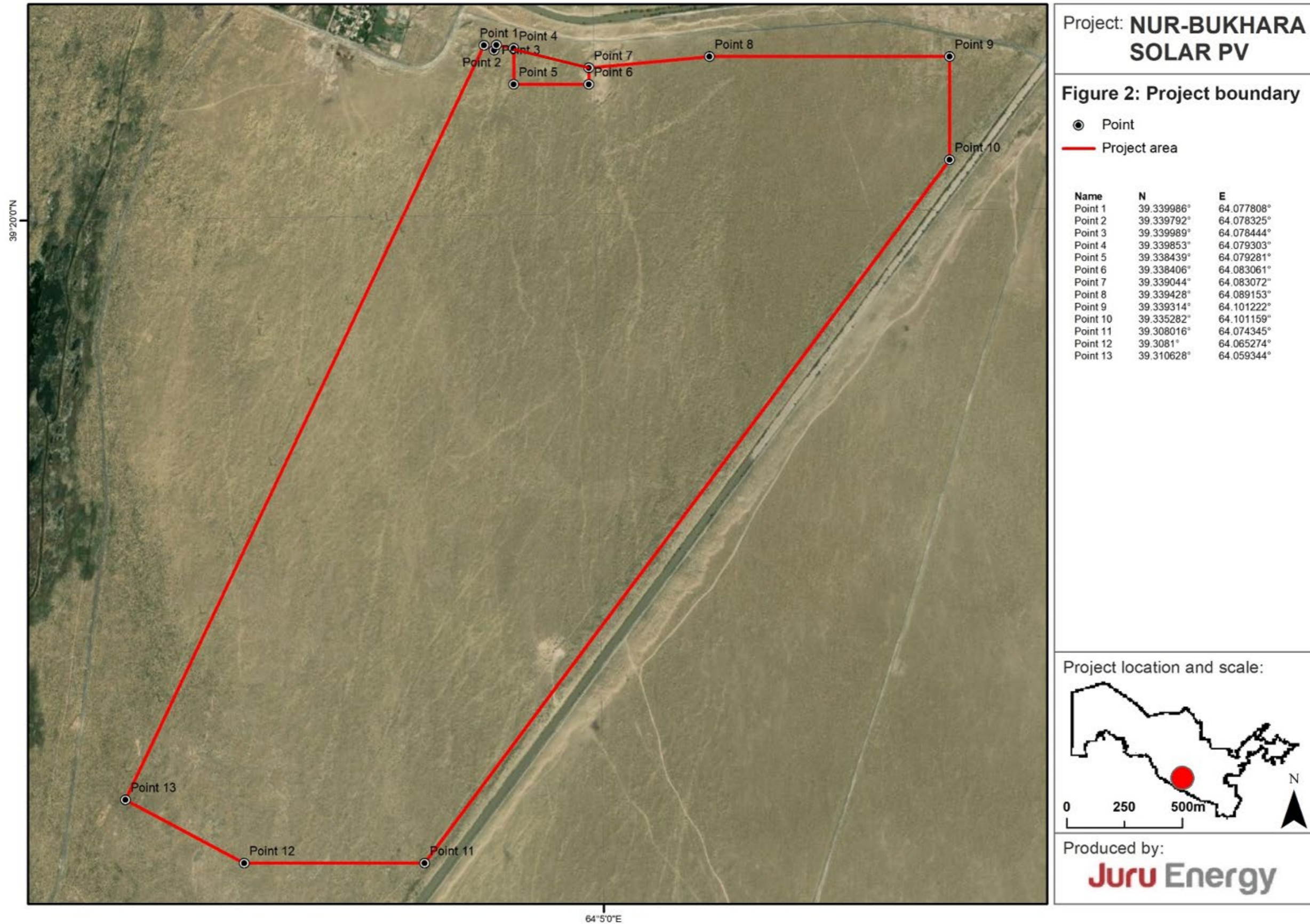


Figure 3: Project layout

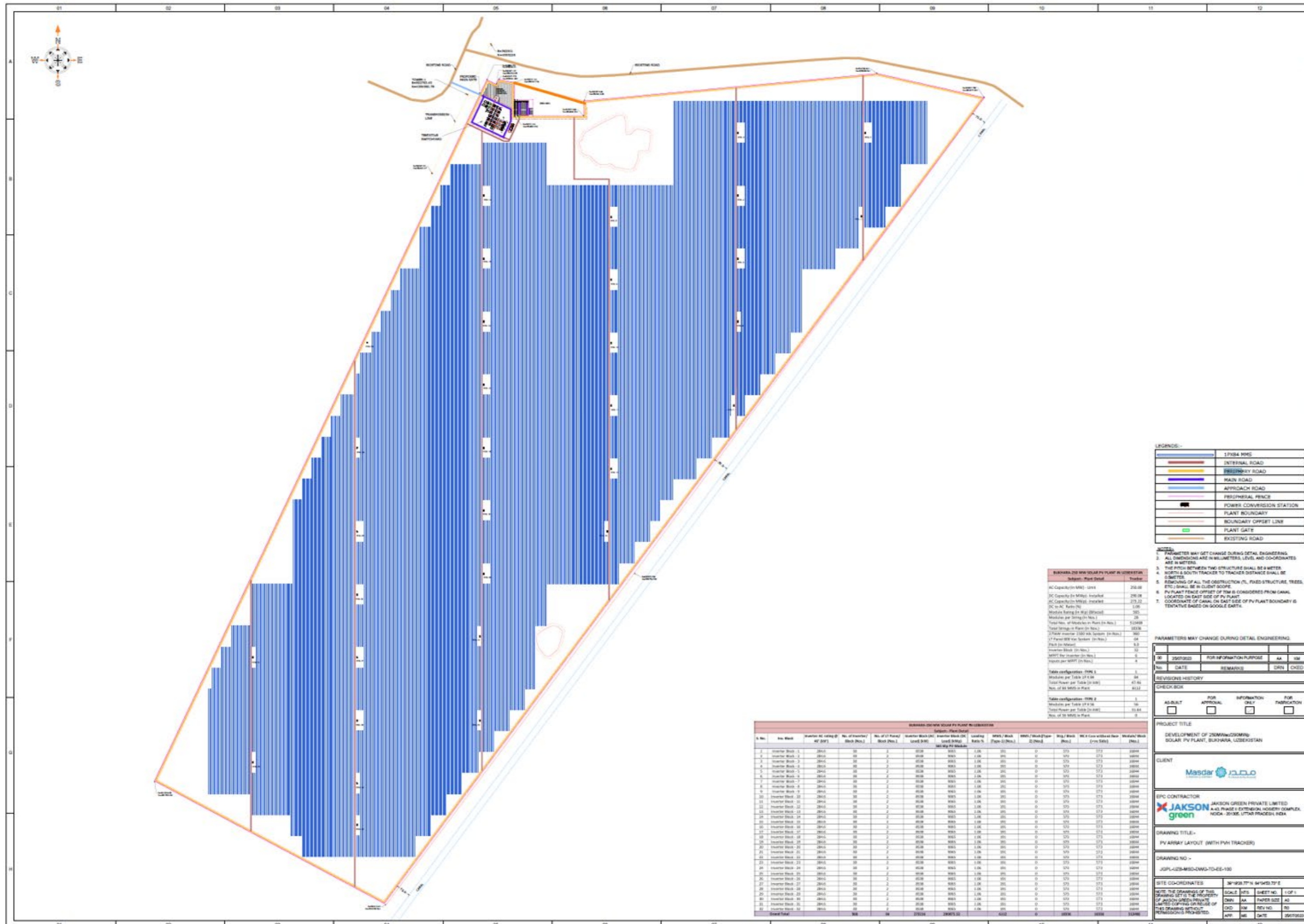
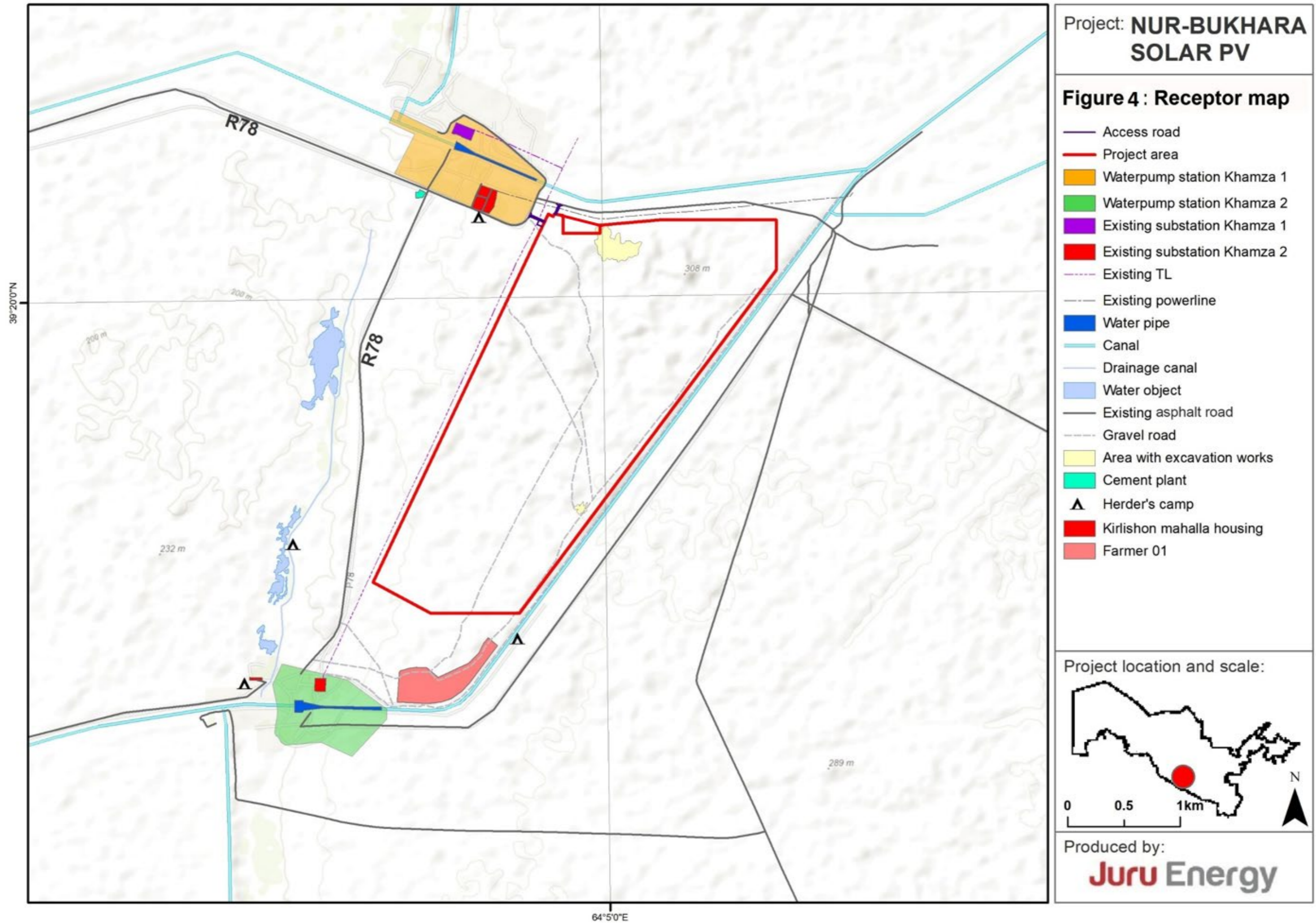


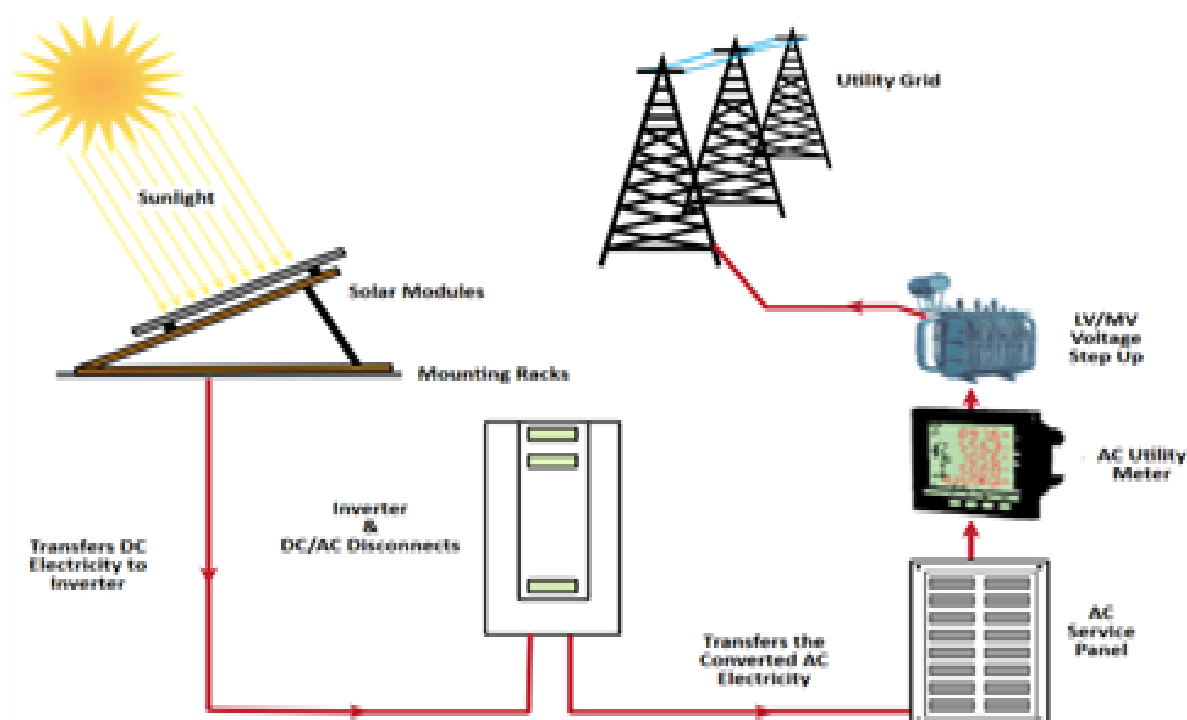
Figure 4: Project receptors and bird's eye view of the Project site



2.2 Project components

Photovoltaic (PV) power uses solar panels to convert sunlight into electricity by converting solar radiation into DC electricity. PV inverters convert the direct current that will be transformed into alternating current, and the transformers (located in the Power Stations) will raise the voltage from Low Voltage (LV) to Medium Voltage (MV). Then, the energy generated will be conducted through an underground medium voltage (MV) network of 35 kV to the 35/220 kV Substation. An overview of the process is illustrated in Figure 5 below.

Figure 5: Overview of the PV process (compiled from IFC, 2015⁷)



The main components of the Project are:

- 513,582 PV modules (half-cut monocrystalline silicon technology).
- Single-axis tracker, inverters, and transformers.
- Lithium-Ion (Li-ion) battery energy storage system (BESS) consisting of four 40ft containers.
- Underground cabling system.
- 35/220 kV substation (new).
- 30 m 220 kV line-in-line-out (LILO) connection to an existing overhead transmission line (OHTL), "Karku'l 500 SS" - "Hamza-2 SS" from the Project's Substation.

- Dismantling and rebuilding approximately 300 m of existing OHTL to enable the new LILO connection (including one new tower).
- On-site buildings, including an operational control centre, office, welfare facilities, security guard house, storage facilities and stores.
- New access from Highway R78.
- New internal access roads.
- Site drainage system.

Figure 6 to Figure 9 illustrate some of the main project components.

Figure 6: PV panels



Figure 7: PV tracking system and inverters (Single-axis trackers follow the sun east-to-west on a single point. NEXTracker)



Figure 8: Battery container (internal)



Figure 9: Typical container BESS (external)¹:



¹ <https://energycentral.com/c/cp/large-battery-energy-storage-systems>

2.3 Development and construction activities

The following activities will be undertaken to develop the Project:

- Site mobilization
- Civil works
- Procurement and transportation of equipment
- Equipment installation
- Waste generation and disposal
- Commissioning
- Operation and maintenance (O&M)
- Decommissioning

Construction of the Project will be confined to the Project site, access road and existing OHTL right of way (ROW), and the duration of the works will be approximately 12 to 16 months. The main construction activities are site clearance (rocks, unused historical utilities, vegetation), establishing vehicle access to the Site, civil works (OHTL, substation and main Site), equipment delivery of PV panels and supporting infrastructure), BESS installation and commissioning.

Site establishment and civil works are expected to take three months, followed by eight months for installation and a further three months for commissioning. Work on-site is planned to start at the end of 2023. A material storage area will be established within the main site boundary. At this time, the water needed for the construction process is expected to be tankered to the Site from a municipal water source in Alat City. Cement will be obtained from a nearby batching plant approximately one kilometre from the Site. The laydown areas and some worker accommodations are expected to be constructed within the Project limits.

The Project may have some on-site accommodation, but contractors will also use off-site accommodation provided it meets Lender standards and adheres to the management and measures stipulated in the ESIA.

The expected lifetime of the PV infrastructure is 25 years (at least), and ten years for the BESS. At the end of its lifetime, options will be considered to replace, repair or remove all infrastructure from the Site.

2.4 Land take

The total estimated land take is 649 ha. The land plot allocated to the Project is owned by the State Committee for Sericulture and Wool Industry Development (SWID) for an indefinite time period. One farmer has a lease agreement to farm 20 ha of land at the

southern section of the Project, outside the site boundary. Up to eight households from Kirilishon community (i.e., the settlement that is located opposite to Project site near Khamza 1 substation) and one herder with formal land right granted by the entity that administers the land for SWID "Alat Qoraqolchilik" LLC to graze that land have also been identified. A 70 m setback has been agreed upon with the Alat District Sanitary Epidemiological Wellbeing Department between the edge of the canal to the West of the Site and the site boundary.

2.5 Project schedule

The planned development schedule is set out in Table 2 below:

Table 2: Current anticipated development schedule

Activity	Date
Scoping	March 2023 (completed)
Consultation on national EIA	Late April 2023 (completed)
Submission of national EIA	05 May 2023 (completed)
Submission of draft ESIA	End of May 2023
Lender disclosure period	Aug-23
Finalise ESIA (including public consultation comments, Lender comments and ongoing studies)	Aug-23
EIA Approval	Aug-23
Financial close	Oct-23
Finalise LRP compensation obligations (pre-construction)	Aug-23
Finalize Project Company and EPC-ESMS (pre-construction)	Sep-23
Early Work program	Aug-23
Limited Notice to Proceed to EPC (site clearance and preparation works)	Sep-23
Construction Start (inverter Skid foundation, civil works, BESS)	Nov-23
1st Module Delivery at Site	Feb-24
Tracker and Module Mechanical Works	February 2024 to August 2024
Electrical works (switchyard and MCR)	February 2024 to August 2024
Commissioning	Jul-24
Early generation	Aug-24
Commercial Operation Date (FC plus 12 months)	Dec-24
Expected Lifetime	25 years (2024 to 2049) (BESS to be renewed after 10 years)
<p>Note: For clarity, early site mobilization includes the construction of the temporary site facilities, telecommunication equipment, worker welfare facilities, road improvements and site fencing. Works on the solar field (including clearance, levelling or any earthworks in the solar field) or any work on the energy production infrastructure of the PV plant is not considered early site works.</p>	

3 Legal and Regulatory Framework

3.1 Applicable environmental and social standards

The Project must comply in all respects with the following:

- Uzbekistan Laws and statutes for management of the environment (Environmental Law), land rights, labour and health and safety, including requirements of international and regional environmental agreements, conventions and treaties as ratified by Uzbekistan (such as International Labour Organization (ILO) conventions and core labour standards)
- IFC Performance Standards (2012) and supporting Guidance Notes (GNs)
- ADB's Safeguards Policy Statement (2009)
- ADB Social Protection Strategy (2001)
- ADB Access to Information Policy (2018)
- ADB Gender and Development Policy (1998)
- World Bank Group (WBG) General Environment, Health, and Safety (EHS) Guidelines
- Good International Industry Practice (GIIP)
- Masdar E&S requirements including E&S policy, Human Resources Policy, Code of Ethics, Policy Against Bribery and Corruption, Recruiting Policy, Supply Chain (Procurement) Policy, and Communication Policy
- Permit conditions: requirements stipulated by the Environmental Statutory Authority responsible for issuing the environmental permit for the Project, and which are a condition under which the environmental permit is issued (pending as of June 2023).

The Project must also comply with the following:

- Environmental and Social Impact Assessment (ESIA), including Non-Technical Summary, Stakeholder Engagement Plan, Livelihood Restoration Plan, Environmental and Social Management and Monitoring Plan, Biodiversity Management Plan, and Environmental and Social Action Plan

4 Organizational Framework

4.1 Overview

This chapter summarises the roles and responsibilities for environmental, health and safety (EHS) management structures and Project responsibilities proposed for this Project. The Project construction will be awarded to a winning EPC contractor under an open tender process for the development and construction phase ("EPC Contractor"). At the commercial operation date (CoD), the Project and all operations and maintenance (O&M) obligations will transfer to the responsibility of the Project Company.

4.2 Involved entities

- ***Masdar***: was the developer of the Project before the establishment of the Project Company, and they are a shareholder in the Project Company. They will be overseeing E&S compliance and reviewing reports to be submitted to Lenders.
- ***Nur Bukhara Solar PV LLC FE (the Project Company or the Company)***: is the entity responsible for the development of the Project and is the owner of the Project and will be the key entity signing the loan agreement with the Lenders and for overseeing the implementation of E&S requirements as defined here.
- ***Project Management Company (PMC)***: the PMC is appointed by the Company and is involved throughout the construction phase to ensure that the EPC Contractor is adhering to the technical project specifications required. For this Project, [Insert name] is appointed as the PMC.
- ***EPC Contractor***: is responsible for preparing the detailed design and layout of the Project; supply of the material and equipment (PV Panels, inverters, etc.); construction of the Project and its various components (PV Panels, internal roads, building infrastructure, etc.). The roles and responsibilities required by the EPC contractor are outlined in Section 5. The EPC Contractor's management team will be responsible for ensuring sub-contractor performance, including:
 - Adequately informing sub-contractors of the requirements of the Project ESMP (this document) and the Contractor ESMS and ensuring they can adhere to them.
 - Making sub-contractors fully aware of all the E&S and occupational health and safety (OHS) and labour rights requirements that must be adhered to through back-to-back provision contract documentation.
 - Identifying the procedures for monitoring and reporting sub-contractor performance and integrating this into overall site reporting requirements.

- **Subcontractors:** Subcontractors are identified as any entity (international or local) appointed directly by the EPC Contractor through contractual arrangements to undertake construction activities within the Project area or provide a specific service for the Project. This could include but not be limited to the appointment of civil, electrical and mechanical subcontractors or services related to cleaning, water supply, waste collection, etc.
- **Lender Environmental and Social Advisor (LESA):** Is assigned by the Lender(s) to provide different services, including E&S due diligence of the Project prior to financial close, supervision and monitoring of the construction and operational phases.
- **Ministry of Natural Resources (MNR):** Is the main regulating body of state administration on environmental protection issues.

4.3 Project Company and PMC E&S team

The following personnel will be deployed by the Project Company, PMC and EPC (also depicted in Figure 10). All roles are site based unless stated otherwise. The Project developer (Masdar) will obtain approval from the Lenders for all job descriptions and provide all CVs for all listed personnel below to Lenders for review and comment:

Project Company:

- HSSE Manager
- CLO
- HR Manager (not site based and may be Masdar position). The PC team will be supported by biodiversity specialist from Masdar.

PMC (MAI Mecados Aires):

- HSSE Manager

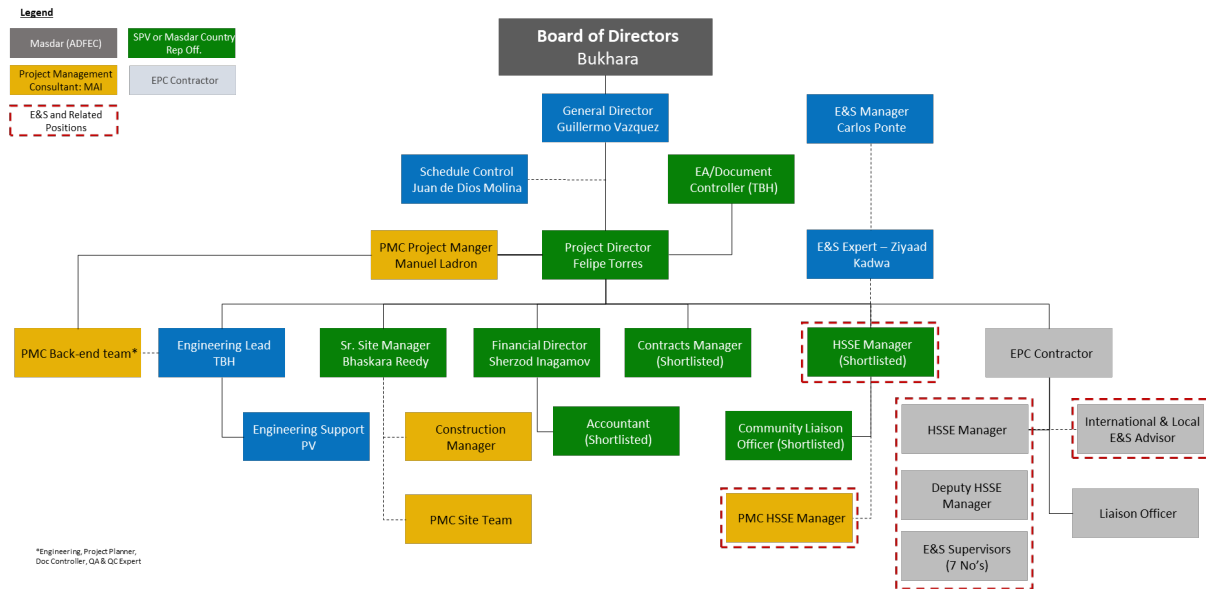
EPC:

- HSSE Manager
- International & Local E&S Advisor
- Deputy EHSS Manager
- E&S Supervisors (ratio of 1:40 estimated to be up to seven)
- Community Liaison Officer
- HR/procurement manager

The EPC is also required (as per the ESIA) to appoint a suitably qualified person to oversee the ecological requirement of the BMP and to employ a local archaeologist to supervise

excavations works (per the requirements of the institute of Archaeology)², (see also mitigation and management requirements below).

Figure 10: Project organogram



² The identification of a suitably qualified archaeological team can be undertaken with the support of, or in coordination with, the local authorities/mahalla or khokimiyat.

5 Environmental and Social Management

5.1 Environmental and social risk identification and assessment

The Project Company has developed the documentation listed below during the environmental and social impact assessment (ESIA) process in order to comply with the environmental and social standards and environmental and social laws listed in the Legal and Regulatory Framework section (section 3):

- National Environmental Impact Assessment (EIA) dated 19 May 2023 (Stage 1 decision received, Stage 2 decision received 22 August 2023).
- Nur Bukhara Environmental and Social Impact Assessment (ESIA), dated August 2023, including:
 - Volume I: Non-technical summary (NTS) (this document)
 - Volume II: Environmental and social impact assessment (ESIA)
 - Volume III: Technical appendices
 - Volume IV: Environment and social management plan (ESMP)
 - Volume V: Stakeholder engagement plan (SEP), including grievance mechanism
 - Volume VI: Livelihood restoration plan (LRP)

5.2 Subcontractor management - prequalification

The Contractor selection process will require demonstration of the following competencies:

- ISO 14001 certified environmental management system (EMS) or equivalent.
- ISO 45001 or equivalent certified health and safety management system (HSMS).
- Publicly disclosed Health and Safety Policy Statement.
- Publicly disclosed Environmental Policy Statement.
- Human Resource Policy.
- Statements relating to any H&S convictions, reportable incidents or environmental breaches.
- Information on supplier qualification related to labour (forced labour, child labour, occupational health and safety and biodiversity)
- Experience implementing requirements of IFC E&S Policy on projects.

The EPC Contractor must coordinate, supervise and monitor all its Subcontractors and ensure that safe practices are implemented, and work is conducted safely and in strict

compliance with the Owner ESMS (see section 5.3 below). The EPC Contractor must prepare a Subcontractor Management Plan defining its approach to managing the E&S performance of their contractor, subcontractors, and other third parties during the various phases of the project. The contractor management approach will be consistent with the general principles described within IFC Good Practice. Managing Contractors' Environmental and Social Performance and will include a program for audit of E&S performance of EPC contractors and subcontractors, specifying frequency of audit (at least monthly during construction phase), reporting and roles and responsibilities.

The EPC must verify the subcontractor's environmental and social safety management system. Personnel from subcontractors will be treated the same way as those from the EPC Contractor.

The EPC Contractor must be able to evidence to the Owner of the subcontractor's ESHS qualification, which must be based on demonstrated capability in ESHS management. Risks and hazards associated with the subcontractor's work must be identified and addressed in the EPC Contractor ESMS.

5.3 Environmental and social management system (ESMS)

The Project Company will adopt the ESMS structure of Masdar and apply it at the Project level in the form of a construction ESMS (cESMS) and operational ESMS (oESMS). The Project Company and the EPC Contractor (and subcontractors) must separately establish and maintain an environmental and social management system (EPC-ESMS) that addresses the requirements of this ESMP as follows:

1. Establish and maintain an ESMS and health and safety management system (HSMS) developed in the manner of international frameworks quality, occupational health and safety and environmental management such as ISO 14001 and ISO 45001 that is proportionate to their role on the Project and the impacts identified in the ESIA.
2. Establish a Human Resources (HR) Policy that fully complies with IFC PS2, ILO core labour standards, and national labour laws and regulations and explicitly addresses issues including but not limited to code of conduct; recruitment; compensation and benefits; official working hours; leave; termination; collective bargaining; child labour; forced labour and overtime to be adopted/reflected in the practices of ALL parties working on the Project.

5.4 Project Company ESMS

An overview of the Masdar construction ESMS (cESMS) is provided below. The Project E&S Policy is provided in Annex A and will be updated for issue prior to construction. The E&S Policy includes commitments to comply with IFC and ADB requirements. This cESMS

includes the required measures to manage the impacts and risks outlined in the ESIA and ESMP and other E&S compliance obligations outlined above, ensuring negative impacts are avoided/reduced to the greatest extent possible and positive impacts are maximized. A list of the requirement management plans under the cESMS is provided below.

During the operation phase, the Project Company oESMS will be updated along the same structure to comply with the operational E&S requirements defined in this ESMP. The key E&S management activities to be addressed in the oESMS are:

- Develop the operational ESMP (O-ESMP).
- Perform E&S-related training for Project Company staff.
- Monitor the performance of the Project against statutory requirements and the agreed objectives and targets.
- Conduct inspections and audits against the ESMP.
- Oversee maintenance works (risk method statements).
- Liaise with stakeholders on E&S matters.
- Report to Lenders

5.5 EPC - ESMS

The EPC-ESMS means the EPC Contractor's environmental, social, health and safety management system (including policies, plans and procedures) for managing compliance with Environmental and Social Law and Project Environmental and Social Standards, and which is certified to ISO 14001 and ISO 45001 and shall include each of the documents listed in Table 3. The separate set of MPs to be prepared by the EPC will be prepared based on the cESMS by adding the Project-specific details (rather than totally from scratch). Responsibilities for different plans under the cESMS are defined in Table 3.

The EPC Contractor will appoint the following site based key roles to support the implementation of E&S measures for the Project at the site level. The EPC Contractor will be required to nominate one (1) EPC Contractor E&S Manager that is supported by two (2) Senior EPC Contractor HSE Manager, as well as one (1) EPC Contractor HR Manager, one (1) EPC Contractor accommodation HSE Officer and one (1) EPC Contractor HSE Officer for every 50 workers. The developer and EPC are also required to have an on-site community liaison officer (CLO).

Subcontractors will also have their own on-site E&S staff. Subcontractors with less than 20 workers shall deploy a non-dedicated E&S Manager. Subcontractors with more than 20 workers shall deploy a dedicated HSE Officer and an additional HSE Officer for each additional 50 workers deployed onsite.

The EPC Contractor's management team will be responsible for ensuring sub-contractor performance, including:

- Adequately informing sub-contractors of the requirements of the Project ESMP (this document) and the Contractor C-ESMP and ensuring they can adhere to the requirements.
- Making sub-contractors fully aware of all the E&S and occupational health and safety (OHS) and labour rights requirements that must be adhered to through back-to-back provision contract documentation.
- Identifying the procedures for monitoring and reporting sub-contractor performance and integrating this into overall site reporting requirements.

The EPC-ESMS must include organization charts for the roles set out above. In addition to Key ESHS Persons, the EPC Contractor must provide site based HSE officers to establish, maintain, monitor, report on and enforce the EPC ESMS at a ratio of 1:40 (HSE officers: Subcontractors). These HSE officers shall be appropriately qualified for this work and have the authority to issue instructions and take protective measures to prevent harm, accidents, and environmental incidents.

This EPC-ESMS shall include the EPC Contractor's system manuals and related source documents, including policies, management programs and plans, procedures, requirements, performance indicators, responsibilities, training, and periodic audits designed to maintain compliance with the Environmental and Social Standards, Environmental and Social Laws and ISO 14001/45001. This EPC-ESMS shall be prepared by the EPC Contractor and delivered to the Owner (and Lender) before mobilization for acceptance and approval.

The EPC Contractor must develop a permit tracking mechanism/register to outline all necessary licenses, consents and permits in line with Environmental and Social Laws, including timing and responsibility for obtaining under the responsibility of the EPC Contractor.

5.6 HR policy

The EPC Contractor will also provide human resources (HR) policies and plans demonstrating compliance with legal and other requirements stipulated in this ESMP (e.g IFC PS2). The policies and plans will include detailed information on workforce induction, information on rights, child and forced labour, equal opportunity, migrant workers, promotion of local employment opportunities, labour unions, worker accommodation requirements, provision for retrenchment plans, security personnel, influx management etc. The EPC Contractor will ensure that core labour requirements align with legislation and other requirements and are cascaded down to contracting

chains to all subcontractors and suppliers of core materials. The EPC Contractor must be able to evidence this transfer of responsibilities down the contracting chain.

5.7 Environmental and social management plans

The following plans will be developed for the Project to comply with the requirements of the ESIA for the construction phase. Relevant stand-alone supporting plans will also be developed for the operations phase. Plans likely to be retained and updated for the operational phase are highlighted in the table below.

Plans shall be implemented by all involved counterparts, including the Developer, the Company, EPC Contractor, O&M subcontractor, subcontractors, and others. However, the implementation of each management plan is led by one designated party (Company or EPC/O&M Contractor), as specified in the table below. The Project Company ESMS (construction and operation) and the EPC-ESMS (construction) will be designed to implement the requirements of these plans. ESMS implementation tools, including forms, templates, checklists, and other documentation, will be used to implement the Project requirements. The Lenders will review and approve the Developer and EPC ESMS standalone topic specific plans as described below and to be developed under the respective ESMS prior to construction.

Table 3: Environmental and Social Management Plans

Reference in ESMS	Name	Overall Description / Objective	Lead Implementation ³	Relevance (phase)
REF 00	Site Mobilization Plan (SMz MP)	The Site Mobilization Plan (SMzP) is prepared as part of the ESMS to drive compliance with E&S obligations during the initial site mobilization phase (site clearance, construction of temporary site facilities, etc.). The Plan describes the E&S procedures and plans to be implemented by the EPC Contractor during the site mobilization phase to ensure all risks and impacts are properly managed and handled during this initial stage. <i>For clarity, early site mobilization includes the construction of the temporary site facilities, telecommunication equipment, worker welfare facilities, road improvements and site fencing. Works on the solar field (including clearance, levelling or any earthworks in the solar field) or any work on the energy production infrastructure of the PV plant is not considered early site works.</i>	EPC Contractor	Construction
REF 01	ESMS Manual	The ESMS drives compliance with E&S obligations for the construction phase by identifying: 1. the overall structure and outline for the ESMS implemented for the construction phase by all involved counterparts, including the Developer, company, contractors and others; 2. E&S policies and commitment requirements;	Company - ESMS EPC - ESMS	Construction Operation Decommissioning

³ This column identifies the lead responsible entity. Compliance is ultimately under the responsibility of the Company. The EPC and its contractors and suppliers shall provide the relevant input for the documents and plans implemented by the Company. All parties shall comply with all relevant ESMS requirements.

Reference in ESMS	Name	Overall Description / Objective	Lead Implementation ³	Relevance (phase)
		3. Structure of the key E&S procedures and plans to be implemented to ensure all risks and impacts are properly managed; and 4. the institutional framework and responsibilities to ensure that such procedures and plans are implemented effectively and efficiently, e.g., inspections, auditing, training, internal communication, documentation control etc. including templates.		
REF 01a	Permits Register	Outlines the status, timelines and responsibilities for Project permits, including those stipulated by the Environmental Statutory Authority responsible for issuing the environmental permit to be implemented for the Project. These are conditions under which the environmental permit is issued, other Project construction permits, EPC led permits, and subcontractor permits.	Company or EPC to take the lead as defined in the EPC contract with other entity supporting as needed.	Construction Operation Decommissioning
REF 02	Subcontractor and Supplier Management Plan (S&S MP)	The Subcontractors and Suppliers Management Plan (SSMP) is to be implemented by the EPC Contractor before and during the construction phase of the Project as part of the ESMS to ensure that Subcontractors and suppliers hired for the project comply with the project E&S requirements.	EPC Contractor	Construction
REF 03	E&S Training Management Plan (TrMP)	The main objective of the E&S Training Management Plan (TrMP) is to identify the training needs in terms of environmental, social, health and safety topics relevant to the project and provide training requirements and	EPC Contractor	Construction

Reference in ESMS	Name	Overall Description / Objective	Lead Implementation ³	Relevance (phase)
		schedule/matrix of training for the range of employees involved in the project during the construction phase.		
REF 04	Stakeholder Engagement Plan (SEP)	The SEP provides a systematic approach to identify the actions the Project needs to undertake to ensure that a timely, consistent, comprehensive, coordinated and culturally appropriate approach is taken for consultations and Project disclosure. The SEP includes specific stakeholder identification and mapping requirements, engagement, information disclosure, consultation meetings and public participation. The SEP is already prepared (Volume V, ESIA) and will be regularly updated throughout the Project construction and operation phase as required, but not less than annually.	Company	Construction Operation Decommissioning
REF 05	Stakeholder (external) Grievance Mechanism (GM)	A community Stakeholder Grievance Mechanism is an established process to receive stakeholder concerns and grievances and to facilitate their resolution through a set procedure. The stakeholder grievance mechanism is implemented by the Company throughout the construction phase of the Project for dealing with stakeholder grievances to identify and manage stakeholder concerns and thus support effective risk management, prevent adverse consequences of failure to adequately address grievances, and build and maintain trust with all stakeholders.	Company (supported by EPC Contractor)	Construction Operation Decommissioning

Reference in ESMS	Name	Overall Description / Objective	Lead Implementation ³	Relevance (phase)
REF 06	Livelihood Restoration Plan (LRP)	The Livelihood Restoration Plan (LRP) is for restoring the livelihoods of formal or informal persons/land users adversely affected by the Project to mitigate and fully compensate for economic displacement impacts.	Company	Construction
REF 07	Community Development Plan (CDP)	Identifies the overall development needs, management and implementation of development initiatives for local communities. The requirements and budget for this work will be defined at a later date based on identified needs.	Company	Operation
REF 08	Labor and Working Conditions Management Plan (L&WC MP) (including project specific Worker code of conduct)	The Labor and Working Conditions Management Plan (LWCMP) identifies the main labor requirements and risks associated with the Project during construction. It determines the relevant management measures to address labor issues and achieve compliance with project obligations and ESMS., This plan also includes the worker grievance mechanism and measures to address worker influx ⁴ (considered low risk).	EPC Contractor	Construction Operation Decommissioning
REF 09	Worker Accommodation Management Plan (WAMP)	This Plan details the specifications for Worker Accommodation Management Plan (WAMP) when employed on the Project during the construction phase. It includes specifications for the design and management of worker accommodation to which contractors (and any sub-contractors) shall comply	EPC Contractor	Construction Decommissioning

⁴ No dedicated worker influx plan is deemed necessary for this Project, but worker influx management measures are addressed across various plans.

Reference in ESMS	Name	Overall Description / Objective	Lead Implementation ³	Relevance (phase)
		when housing their workforce, as well as a code of conduct for workers staying in the accommodation.		
REF 10	Occupational Health and Safety (OHS) Management Plan (MP)	The Occupational Health and Safety (OHS) Management Plan (OHSMP) establishes guidelines and procedures that clearly describe how construction activities will be carried out to ensure employee safety and safeguarding of personnel and property for routine and non-routine activities. The objective is to prevent all OHS incidents to the greatest extent possible for all employees and ensure environmental protection at the place of work, zero fatal accidents and lost time accidents, and full compliance with legal and contractual requirements.	EPC Contractor	Construction Operation Decommissioning
REF 11	Emergency Preparedness and Response Plan (EPR MP) (including medical response procedure)	The objective of the Emergency Preparedness and Response Plan (EPRP) is to establish a series of organization, operational and preventive measures in the event of an emergency that is adapted to the circumstance of such situations, which in turn will ensure the safety of workers, the environment and potentially communities. The EPR will include a medical services procedure outlining on-site and off-site medical care provisions, including outbreaks of communicable diseases (e.g., COVID-19). It will also include a drill schedule to complete emergency drills that will prepare workers for possible emergency	EPC Contractor	Construction Operation Decommissioning

Reference in ESMS	Name	Overall Description / Objective	Lead Implementation ³	Relevance (phase)
		situations. This includes consideration of EPR requirements/implications for nearby communities.		
REF 12	Traffic and Transportation Management Plan (T&T MP)	The Traffic and Transportation Management Plan (TTMP) for implementation during the project's construction phase is to avoid traffic and transport-related risks to Project workers and communities during construction, promote safe driving awareness among the project staff, and establish best practices on vehicle management. This includes management of any impacts on the community from traffic and transportation-related impacts.	EPC Contractor	Construction Decommissioning
REF 13	Security and Human Rights Management Plan (SHR MP)	The objective of the Security Management Plan (SMP) is to identify the security measures that will be implemented onsite for mitigating security risks and ensure that a responsible approach towards security management is implemented to protect stakeholders and workers from human rights abuses.	EPC Contractor	Construction Operation Decommissioning
REF 14	Hazardous Material and Waste Management Plan (HMWM MP)	The main objective of the Hazardous Materials, Waste and Wastewater Management Plan (HMWWP) is to identify the types and quantities of hazardous materials sourced and natural resources used, and waste and wastewater generated at the project site during the construction phase and to describe the procedures and responsibilities for the management, transport, storage and disposal of these materials, substances, and waste products.	EPC Contractor	Construction Operation Decommissioning

Reference in ESMS	Name	Overall Description / Objective	Lead Implementation ³	Relevance (phase)
REF 15	Water Management Plan (WaMP)	The Water Management Plan (WMP) identifies sources of water supply for the Project, estimation of required quantities, and procedures for the sustainable use and management of water resources used throughout the construction phase of the Project. This includes management of any impacts on community water availability.	EPC Contractor	Construction Operation Decommissioning
REF 16	Biodiversity Management Plan (BMP)	The Biodiversity Management Plan (BMP) ensures the protection of biodiversity resources, including habitat, fauna, flora, and avifauna, during the site preparation and construction phase of the Project.	EPC Contractor	Construction Operation Decommissioning
REF 17	Emissions Management Plan (EMP)	The CEMP is a site-specific plan developed to ensure that appropriate environmental management practices are followed during the construction of the project to control and minimize associated environmental impacts. The CEMP outlines how a construction project will avoid, minimize, and mitigate its environmental impact and ensures that environmental aspects not covered by other plans (soil, hydrology, dust, noise, etc.) are managed in compliance with the Project's E&S obligations. This includes community health and safety risk from environmental aspects (e.g., dust and noise)	EPC Contractor	Construction
REF 18	Chance Find Procedure (CFP)	Identifies procedures to be implemented during the construction phase of the Project where there is potential for as-yet undiscovered cultural heritage or archaeological remains to occur (i.e., chance finds)	EPC Contractor (supported by Institute of Archaeology)	Construction

Reference in ESMS	Name	Overall Description / Objective	Lead Implementation ³	Relevance (phase)
		underground during the construction phase of the Project.		
REF 19	Gender Management Plan (GMP)	A Project Gender Action Plan (GAP) is ADB’s key gender mainstreaming tool and mechanism for ensuring gender-inclusive design and implementation of projects.	Project Company	Construction Operation Decommissioning
REF 20	Operational E&S Management and Monitoring Plan (OESMP)	Operational Management and Monitoring Plan (OMMP) is an operational plan for managing E&S risks with supporting procedures, forms, and method statements as per the requirements of this ESMP. This plan will include a local hiring plan in order to identify and train as many as possible local people employed on the construction stage to develop/create the necessary skills to continue work on the Project during the operation stage for roles where the basic qualification criteria for the O&M of the plant can be met. <i>Including a Manpower and Training Plan.</i>	Project Company	Operation
REF 21	Decommissioning E&S Management and Monitoring Plan (DESMP)	Decommissioning phase plan (with supporting subplans) for managing E&S risks with supporting procedures, forms and method statements as per the requirements of this ESMP.	Project Company	Decommissioning

6 Mitigation and Management Requirements

6.1 Introduction

The ESMP sets out the management and monitoring requirements for the design, pre-mobilization, construction (including site preparation) and operation phases of the Project.

6.2 Mitigation and management requirements – design and procurement phase

Table 4: Mitigation and management requirements – design and procurement phase

Objective	Activity	Action	Responsibility	Timescales	Evidence
Avoid significant impacts on sensitive receptors from the construction works.	Design / EPC Contractor Technical Specification	<ul style="list-style-type: none"> ● Grade temporary access roads so their slope is not too large to avoid the build-up of fast-running runoff water during extreme precipitation events. ● All equipment to ensure less than 85d(B) A at 1m from the equipment. ● No noisy or high noise activities to be undertaken outside normal working hours (7am to 6pm) without prior approval of the Project Company. ● EPC contractor to supplement existing noise baseline with pre-construction baseline noise measurements at nearest residential receptor to the R78 for the Kirlishon and Kulchovdur communities, the R78 between the Kirlishon and Kulchovdur communities, batching plant, and community within the Khamza 1 pumping station. 	Contractor (detailed design)	Pre-FC ⁵ Pre-NTP ⁶	EPC Contract ⁷ EPC approved Design REF00 Site Mobilization Plan
Address climate resilience measures in the technical design	Design / EPC Contractor Technical Specification	<ul style="list-style-type: none"> ● Design project for climate projections up to 2085 – consider the need to reinforce the structures or higher design standards (stronger winds, higher temperatures). ● Design access roads to consider short-term, extreme weather events. ● Design any drainage to account for increased or short-term extreme precipitation patterns. ● Design for increasingly frequent and extreme dust storms. ● Specify more effective cooling for BESS, substations, and transformers. ● Design shading around the BESS to help cool. 	Masdar Contractor (subcontractors)	Pre-FC Pre-NTP	EPC Contract Technical Specification) EPC approved design
Reduce the use of raw materials/ potentially finite and or scarce resources.	Design / EPC Contractor Technical Specification	<ul style="list-style-type: none"> ● Substitute raw materials or inputs with less hazardous or toxic materials wherever economically and technically feasible. ● Identify opportunities to prevent waste production in the first instance. ● Dry cleaning for PV panels. ● No groundwater is to be used in the construction process. ● All drinking and potable water will be tankered to the Site from a sustainable source. ● No water can be extracted from the ABIS canal or other surface water sources. ● Use septic tanks on Site for wastewater management. 	Contractor (subcontractors)	Pre-FC Pre-NTP	EPC Contract Approved Design Water Resource confirmation REF00 Site Mobilization Plan
Ensure biodiversity mitigation measures are incorporated into the design	Design / EPC Contractor Technical Specification	<ul style="list-style-type: none"> ● Maintain a 70 m setback from the fence line to the edge of the ABIS canal. ● Install Bird Flight Diverters on overhead, or static lines of the OHTL on all new (30m) and refurbished (200m) sections of 220kV powerline. ● Select fencing that allows the free movement of small fauna onto and across the site (through a gap of circa 20 cm under the fence) to support habitat (and soil) restoration goals and limit biodiversity impacts. 	Masdar Contractor (subcontractors)	Pre-FC Pre-NTP	EPC Contract Approve Design REF00 Site Mobilization Plan
Hazardous materials	Design / EPC Contractor Technical Specification	<ul style="list-style-type: none"> ● Prohibit the following materials in EPC Contract: <ul style="list-style-type: none"> ○ Asbestos ○ PCB-containing materials. ○ lead-based paints ○ pesticide, and herbicides defined under the Stockholm Convention. 	Masdar Contractor (subcontractors)	Pre-FC Pre-NTP	EPC Contract Approve Design

⁵Pre-NTP – Pre-Notice to proceed.

⁶Pre-FC – Pre-Financial Close.

⁷In this table, reference to “EPC Contract” refers to the inclusion of this requirement as a specific contract obligation in the EPC contract. Implementation of these requirements will be monitored during construction and operation as relevant (and noted in subsequent tables).”).

Objective	Activity	Action	Responsibility	Timescales	Evidence
Safeguard workers and community from an emergency or abnormal events	Design / EPC Contractor Technical Specification	<ul style="list-style-type: none"> ● Ensure sufficient separation between battery containers and batteries and other critical infrastructure. ● Ensure sufficient ventilation (BESS) ● Hazard and fire protection, including gas extinguishing method using NOVEC1230 and water or liquid Fire Fighting (Suppression) System) (FFS) along with detectors for combustible gas like hydrogen or carbon monoxide and their exhaust system. ● Ensure all BESS containers can be locked to prevent unauthorized access. ● The areas between and around the equipment will be finished with gravel and kept free of vegetation or other material that could act to spread a fire. ● The Project will have a dedicated emergency preparedness and response plan in place. 	Masdar Contractor (subcontractors)	Pre-FC Pre-NTP	EPC Contract Approve Design
Safeguard the well-being and improve the living standards of those whose livelihoods are involuntarily displaced.	Complete implementation of the Livelihood Restoration Plan	<ul style="list-style-type: none"> ● Make all compensation payments as required in the LRP prior to losing access to the land. ● Start (and complete, if possible) any livelihood restoration activities as required in the LRP before site clearance. 	Project Company	Pre-construction	Evidence of compensation paid. LRP Monitoring Report Compliance report Close out report
Promote local hiring	EPC Contract	<ul style="list-style-type: none"> ● Unbundle procurement contracts so that local community members have a greater chance of supplying the Project and advertise employment and procurement contracts locally and in local languages. ● Set target of at least 15% national participation (Uzbek). ● Confirm that Kirlishon and Kulchovdur communities will be considered 'local' for the purpose of local hiring. ● Adopt approach to maximise "local" hiring including training 3 months in advance of the start of operations in order to identify and train as many local people as possible who were employed on the construction stage to make them skilled enough to continue work on the Project on the operation stage. ● Discuss with Alat district khokimiyat and local communities the employment and procurement contracts available to manage expectations of the number of local jobs that will be available. ● Prioritize employment of local community members where possible. ● Prioritize employment of PAPs or members of their families where possible. ● Prioritize procurement of goods from local communities where possible. ● Where possible, prioritize women's employment and people from vulnerable groups. 	Project Company	Pre-construction	EPC Contract
Safeguard local community from worker influx.	EPC Contract	<ul style="list-style-type: none"> ● All accommodation (onsite or off-site) must comply with "Worker's Accommodation Processes and Standards": Guidance Note by IFC and EBRD. ● Community grievance mechanism provided in locations where worker accommodation is provided in local communities. ● Do not allow contractors to use at-the-gate hiring or day laborers. 	Masdar Contractor (subcontractors)	Pre-FC Pre-NTP	EPC Contract Approve Design REF08: Labour and Working Conditions MP REF09: Workers Accommodation MP

6.3 Mitigation and management requirements - pre-mobilization phase

Table 5: Mitigation and management requirements – pre-mobilisation phase

Objective	Activity	Action	Responsibility	Timescales	Relevant Management Plan / Monitoring / KPI
Comply with national permit requirements.	Environmental permits Labor permits Construction permits Transportation permits	<ul style="list-style-type: none"> Develop permit matrix (name, phase, requirements, and lead) and set out conditions register. 	Project Company / EPC Contractor	Pre-Financial Close (FC)	REF 01a Permit matrix – monthly updates
Implement robust ESMS for the duration of the Project	Site implementation from NTP to COD	<ul style="list-style-type: none"> Establish the cESMS. Establish the EPC-ESMS 	Project Company / EPC Contractor	Pre-Financial Close (FC)	REF 00 ESMS Manual EPC-ESMS
Demonstrate Contractor capacity to implement the E&S requirements for the Project.	Organization	<ul style="list-style-type: none"> Define Project Company Project Implementation Team Define Contractor Project Implementation Team 	Project Company / EPC Contractor	Pre-mobilization	Sponsor organogram (approved by Lenders) REF 00 ESMS Manual
Ensure a transparent and robust supply chain	Supplier selection	<ul style="list-style-type: none"> Unbundle procurement contracts so that local community members have a greater chance of supplying the Project and advertise procurement contracts locally and in local languages. Perform panel supply chain due diligence or obtain third-party supply chain due diligence reports to verify potential suppliers' credentials regarding the occurrence of forced labour, child labour or occupational health and safety failures. The supply chain will be mapped (to the polysilicon level) and verified by an independent consultant for the point of origin. For all other materials adopt the Masdar Supply Chain and Procurement Policy that includes the following obligations: <ul style="list-style-type: none"> Prohibit forced labour at the Site and in the supply chain. Prohibit the hiring of child labour at the Site and in the supply chain. Preference for using local suppliers where possible. Maintain an employee register. Preference suppliers who remove packaging waste for ultimate disposal (following Uzbek regulations and transboundary waste disposal obligations) 	Project Company / EPC Contractor	Pre-mobilization	Panel procurement DD (performed by Masdar affiliate). Supply Chain and Local Employment and Procurement (see Appendix C) REF02 Subcontractor and Supplier MP
Promote the use of local workers on the Project	Procurement of local labour and contractors	<p>Develop Local Hiring Procedure as part of the Labour and Working Conditions Plan including:</p> <ul style="list-style-type: none"> Workforce requirements for the construction and operation phase for Masdar, the EPC Contractor and subcontractors, including the number of E&S personnel and their qualifications. 	Contractor (subcontractors)	Pre-mobilization	EPC Contractor HR manager REF08: Labour and Working Conditions MP

Objective	Activity	Action	Responsibility	Timescales	Relevant Management Plan / Monitoring / KPI
		<ul style="list-style-type: none"> ● Key competencies for all roles with plenty of notice to mobilize local recruitment. ● Hiring needs. ● Local counterparts for advertising project needs (skilled and unskilled workers) may be sourced from the local labour pool. ● Mechanism for promoting women working on the Project. ● Prioritizes local unskilled/semiskilled local employees. ● Definition of working terms and conditions (salary, etc.) for each role on site. ● Nominate an EPC Contractor HR manager to oversee employment matters on the Project. 			
Implement good international practice (GIIP) for site management and coordination.	Notification of works	<p>Following GIIP undertake the following:</p> <ul style="list-style-type: none"> ● Plan and give regulators advanced warning of potential problems and the start of work. ● Always display on Site the emergency number for regulators and local community leaders at key worksites. ● Ensure site personnel know the correct procedure for reporting incidents 	EPC Contractor	Pre-mobilization	Monthly update via the PIT REF04 SEP REF11 EPR MP
	Managing sub-contractor mobilization)	<ul style="list-style-type: none"> ● Follow IFC Good Practice Guidance note: Managing Contractors Environmental and Social Performance (section 4.5) including: ● Sub-contractors should provide work completion certificates and EHS certificates to prove their past environmental performance before hiring. ● Ensure subcontractors have a copy of the Project ESMP and EPC-ESMS as part of the tender process. Ensure sub-contractors attend environmental training/induction sessions (communicated to workers in their main language(s) spoken). ● Audit the performance of sub-contractors during the Project. ● Adhere to the local hiring policy (see below) for prioritizing local contractors. ● Require sub-contractors to provide a copy of their HR policy for approval, or they commit to following the EPC Contractor's/ Project Company HR policy that meets Lender and ILO requirements and prohibits explicitly child and forced labour use, OHS management and encourages non-discrimination. 	Contractor (subcontractors)	Part of the contractor tender process	Proof of checks, training records Site inspection records HR policies approved by EPC Contractor REF02 Subcontractor and Supplier MP
	Management and site control	<ul style="list-style-type: none"> ● Nominate a person within Contractor's organization with defined responsibility for the EHS role in Project. ● All method statements to include EHS requirements. ● All PTW forms to include reference to E&S (including community and climate risks). ● Through relevant training, ensure everyone on Site is aware of their responsibilities and liabilities with respect to the environment and social responsibility. ● Through site induction, inform staff and visitors of Project environmental issues and standards (including labour, climate, E&S and security risks). ● Display warning signs at key work sites prominently 	EPC Contractor	Throughout project works	Successful third-party audit (Project Company) REF00 ESMS Manual

Objective	Activity	Action	Responsibility	Timescales	Relevant Management Plan / Monitoring / KPI
		<ul style="list-style-type: none"> ● Make Project Company environmental policy available to all on Site ● Protect primary work sites against vandalism, theft, and breakage with perimeter fence (a temporary perimeter fence must be erected if the permanent site fence is not erected at mobilisation) ● Define responsibilities for site's security in a Security Management Plan (as defined below) while the services are being performed. ● Secure the Project boundary with a secure fence. 	EPC Contractor		
	All Site works	<ul style="list-style-type: none"> ● Establish a safe working environment with an occupational health and safety (OHS) plan that addresses potential hazards, identifies preventive and protective measures, including training and use of PPE, and describes documentation and reporting of accidents, diseases and incidents. 	Contractor (subcontractors)	Throughout project works	REF10 OHS MP
	Liaison with the local community	<ul style="list-style-type: none"> ● Identify the key local representatives and inform them of the Project's progress. ● Nominate a community point of contact in the Contractor team and Operations team (a CLO) ● Display a contact board at the perimeter of key work sites stating contact details in case of a complaint or comment. ● Use this board to display information about project phasing and other relevant matters. ● Implement the requirements of the grievance mechanism and stakeholder engagement plan (SEP) ● Deal with any grievances that arise quickly and follow the defined grievance procedure. ● Create a log of grievances and ensure they are appropriately followed up and resolved. 	EPC Contractor/CLO	Start of Site works – ongoing after that.	Monthly audits Communication records CLO Daily Site walk around Grievance logs Number of complaints REF04 SEP
Ensure general site housekeeping and environmental protection	Daily and weekly site inspections of permanent work sites	<ul style="list-style-type: none"> ● Work sites will be subjected to “walk-round” site inspection by the contractors' EHS management staff daily. 	EPC Contractor (oversight by Project Company)	Throughout project works	Site inspection records Number of complaints Target zero
Protected Priority Biodiversity Features	Complete mitigation obligations	<ul style="list-style-type: none"> ● Preconstruction sensitive plant survey (<i>Calligonum matteianum</i>, <i>C. molle</i>, <i>C. paletzkianum</i>) including construction phase seed collection and replanting program (completed⁸). 	Project Company	To be completed before construction	Project Company BMP (part of ESMP) (including CAT rescue

⁸ Due to drought, the Spring/summer flora survey planned for the time window when the seeds of *Calligonum* are ripe and have not yet fallen from the parent plants did not enable the identification of (*Calligonum matteianum*, *C. molle*, *C. paletzkianum*). Previous surveys will be used to define the replanting program

Objective	Activity	Action	Responsibility	Timescales	Relevant Management Plan / Monitoring / KPI
		<ul style="list-style-type: none"> ● Pre-construction survey (June) for reptiles (to confirm the baseline survey findings concerning presence or absence of Central Asian Tortoise (CAT) (completed). ● Perform a terrestrial animal survey and chance rescue/relocation plan immediately before construction for CAT. 	EPC Contractor (oversight by Project Company)		and relocation procedure) EPC BMP approved by PC. REF16 BMP
Noise	Establish baseline at all nearest noise sensitive receptors including along transportation route	<ul style="list-style-type: none"> ● Supplement noise baseline to include communities (Krilishon, Kulchovdur) adjacent to the main access route in case of complaints relating to noise generated by passing heavy vehicles 	EPC Contractor	To be completed before construction	Noise baseline report REF17 Emissions MP

6.4 Mitigation and management requirements – construction

Table 6: Mitigation and management requirements – construction

Objective	Project Activity	Action	Responsibility	Timescale	Monitoring / KPI
Minimise dust generation within the direct AOI (200m from the works)	Earthworks, material handling. (measures to control dust from vehicle activities described under traffic and transportation) (C&D) Infrequent maintenance activities (O&M).	As part of the Construction Emissions Management Plan, develop procedures for the implementation of the following GIIP: <ul style="list-style-type: none"> ● Locate activities and rock/earth stockpiles more than 250 m away from the ABIS canal edge. ● Use off-site concrete batching off-site for all concrete needs. ● Demarcate work areas and access roads. ● Cover, seed, or fence stockpiles to prevent wind whipping. ● Keep stockpiles for the shortest possible time. ● Consider the prevailing wind direction when siting stockpiles to reduce the likelihood of affecting sensitive receptors. ● No bonfires. ● Minimise amounts of material handling and avoid double handling. ● Seal or re-vegetate completed earthworks as soon as reasonably practicable after completion. ● Ensure all vehicles carrying loose or potentially dusty material are fully sheeted to or from the Site. ● Cement and other fine powders will be sealed or put in bunded containers after use. ● Regular (daily) visual monitoring of dust episodes, soiling of vegetation, dust resuspension on the roads and dust clouds. ● Re-vegetate areas as soon as possible. ● Provide workers with relevant PPE, including dust masks. ● Require all contractors to have an on-site area for shelter during dust events. ● Construct new road sections following site clearance and stockpile management requirements, including covering stockpiles to minimize dust events. ● Excavation, handling, and transport of erodible materials shall be avoided under high wind conditions (>15km/h). ● Use water (from a sustainable source) or other control measures such as chemical bonding agents or aggregate to control dust. ● Demarcate delivery road and access tracks at the Site and ensure all workers stick to the demarcated area. ● Record any exceptional incidents that cause dust, either on- or off-site, and the action taken to resolve the situation in the logbook. 	EPC Contractor (subcontractors)	Construction	Site inspection records Community grievances REF17 Emissions MP
Minimize the impact of fugitive emissions from vehicle exhausts and equipment on receptors along with the direct AOI and the delivery route from the railway station to the “Material and Equipment Laydown Area.”	Earthworks, material handling/vehicle movements	As part of the Construction Emissions Management Plan, including requirements for the following GIIP: <ul style="list-style-type: none"> ● Use of modern vehicle/construction fleet meeting national emissions standards and have regular maintenance work following “O’z DSt 1057:2004 Vehicles. Safety requirements for technical conditions” and “O’z DSt 1058:2004 Vehicles. Technical inspection. Method of control”. ● Monitor all engines and equipment that are turned off when not in use. ● Locate machinery and dust-causing activities (e.g., access roads, stockpiles) away from nearby sensitive receptors where practicable and more than 250m from the ABIS canal. ● Minimise movement of construction traffic around the Site (use demarcated routes only). ● Keep vehicle movements to a minimum. ● Enforce speed limits and reduce vehicle movements (maximum of 10 km/h) for project vehicles on unsurfaced roads). ● . 	EPC Contractor (subcontractors)	Construction	Site inspection records Construction reports REF17 Emissions MP
Minimise noise emissions	Operation of site equipment	● .	EPC Contractor (subcontractors)	Construction	Site inspection records

Objective	Project Activity	Action	Responsibility	Timescale	Monitoring / KPI
		<ul style="list-style-type: none"> ● Demarcate specific routes from the existing road to the right of way that maintain a buffer of at least 250m from NSR where possible. ● Inform nearby dwellings on the timing and duration of works and when the noisiest stages will likely occur (ongoing through the process). ● Plant and equipment are to be examined daily for defects before the start of work, and under no circumstances should defective equipment be used. ● Acoustic covers on machine engines are to remain closed as applicable. ● Avoid unnecessary revving of engines and equipment to be switched off when not in use. ● Site operatives are to be briefed on keeping noise to a minimum. ● No blasting without prior approval of the Project Company. ● Locate static plant (e.g., generators) to take advantage of any screening to break the line of sight from receptors. ● Brief site operatives to keep noise minimal as part of the induction process. ● Following the SEP, inform receptors when work will commence and any particular noisy works. 			Construction reports REF17 Emissions MP
	Construction traffic	<ul style="list-style-type: none"> ● Limit vehicle speeds on track to 10 km per hour. ● No traffic should park up on the route between the railway station and the “Material and Equipment Laydown Area.” ● All vehicles are to evidence regular maintenance schedules following national statutory requirements. 	EPC Contractor (subcontractors)	Construction	Site inspection records Construction reports REF17 Emissions MP/REF12 Traffic and Transportation MP
Minimize waste generation	Construction PB/BESS/OHTL / substation	<ul style="list-style-type: none"> ● Select PV panel producers and battery suppliers that can ensure the take-back and recycling of PV panels during the operation phase and end-of-life decommissioning. ● Ensure selected PV modules and battery supplier contract includes all costs for returning and decommissioning PV panels (intermittently during operation and end of life). ● Prohibit the following materials in EPC Contract / Procurement Policy <ul style="list-style-type: none"> ○ Asbestos ○ PCB containing materials ○ Lead-based paints ○ Pesticides and <i>herbicides</i> as defined under the Stockholm convention. ● Consider off-site manufacture and design for disassembly to minimize resource use. ● Check need and perform an asbestos survey of OHTL tower and conductors to confirm presence or absence of asbestos in insulation material. If asbestos confirmed, develop an asbestos removal and management plan prior to the start of OHTL removal works). 	Project Company	Construction	Waste logs REF14 Hazardous Materials and Waste MP
Minimise impact on water resources	Construction PV/BESS/OHTL / substation	<ul style="list-style-type: none"> ● Construct the perimeter drainage system, to act as a cut-off drain to protect the ABIS Canal during earthworks as set out in Water Management Plan which includes the Storm Water Management Procedure. ● No storage or laydown areas within 250 m of the ABIS canal ● No groundwater abstractions for potable or construction-related purposes. ● Sanitary waste will be collected in portable latrines or septic tanks, and wastewater will be collected for disposal off Site in a municipal wastewater treatment facility (under licence). ● Portable latrines or septic tanks must be installed at least 250 m from the canal edge, with leak prevention and detection measures. ● Undertake groundwork to ensure appropriate site drainage (avoiding risk of contaminated runoff) 	EPC Contractor (subcontractors)	Construction	Site inspection records Construction reports REF15 Water MP

Objective	Project Activity	Action	Responsibility	Timescale	Monitoring / KPI
		<ul style="list-style-type: none"> No direct discharge or uncontrolled releases of potentially contaminated water to the ground, e.g., concrete washout or oily wastewater (see actions on spill control below). Establish a controlled concrete washout area (on Site) Maintain a mandatory 70 m buffer between the site fence line and the edge of the ABIS canal. 			
Sustainable water use	Construction PB/BESS/OHTL / substation	<ul style="list-style-type: none"> Drinking/potable and construction water will be sourced from the municipal supply and tankered to the Site (under permit). All concrete will be delivered to the Site pre-mixed with approved water use licences. Do not use water for dampening down roads. Potable water should be obtained from a sustainable source (and not obtained from ABIS canal or municipal). 	EPC Contractor (subcontractors)	Construction	Site inspection records Construction reports REF15 Water MP
Minimise road hazards, congestion, and damage to road infrastructure (surfaced roads) and residents along the route (see also CHS below)	Site/ROW clearance	<ul style="list-style-type: none"> Contractors should use a pre-defined route to the “Material and Equipment Laydown Area” (route TBD in the Traffic and Transportation Management Plan Design laydown area and delivery approach to minimize vehicle stopping outside the site access. Obtain any necessary approvals. Confirm no road improvements are required and, where required, ensure they comply with relevant country laws and standards. Include a clause in the EPC contract that any damage to the road (wear and tear over the construction period) must be repaired and ‘made good’. EPC to confirm delivery routes and conduct condition surveys of routes to be used at the Project site. <p>Develop a Traffic and Transportation Management Plan (TTMP) that includes the following GIIP and aligns with IFC EHS Guidelines: General:</p> <ul style="list-style-type: none"> No stopping of Project-related vehicles or abnormal loads is allowed between Alat city and the Project site.” All drivers are to undergo a driver induction. Signage on R78 after Khamza pumping station to inform road users of the construction site entrance. 	EPC Contractor (subcontractors)	Construction	Approved REF12 Traffic and Transportation MP Training logs/ attendance sheets Signage in place
Minimise road hazards, congestion and damage to road infrastructure (unsurfaced roads/construction areas)	Equipment delivery	<ul style="list-style-type: none"> Ensure drivers are trained to drive heavy goods vehicles (HGVs) on unsurfaced roads (where necessary). Check that all drivers have the necessary license for their vehicles. Ensure all vehicles have up-to-date maintenance records. Minimise transport of workers along the unsurfaced road sections and use pool vehicles where possible. Consider the location for the accommodation camp and the Material and laydown area to minimize additional transportation through local villages and along the unsurfaced road. Notify the local communities about the delivery of wide/heavy loads and how it could impact their road use. 	EPC Contractor (subcontractors)	Construction	REF12 Traffic and Transportation MP Training logs/ attendance sheets Maintenance records Meeting minutes/ attendance sheets/ SE log
Minimise traffic-related accidents (surfaced and unsurfaced roads)	Equipment delivery	<ul style="list-style-type: none"> Demarcate delivery roads and access tracks across the Site and ensure all workers stick to the demarcated area. Maximum of 40 km/h on the section of road between Khamza 1 pumping station and Site. Minimise pedestrian interaction with construction vehicles. All drivers are to undergo a driver's induction and sign the driver's code of conduct. Employ safe traffic control measures, including road signs and flag persons, to warn of dangerous conditions along the unsurfaced road to the work fronts. Report all traffic accidents and statistics in weekly EHS reporting (all contractors) All drivers carrying personnel or material along unsurfaced roads must undertake off-road driver training. 	EPC Contractor (subcontractors)	Construction	REF12 Traffic and Transportation MP Training logs/ attendance sheets

Objective	Project Activity	Action	Responsibility	Timescale	Monitoring / KPI
		<ul style="list-style-type: none"> ● Provide awareness training to receptors (herders, local residents, and workers at Khamza 1 and Khamza 2 substations). ● No night-time driving along unsurfaced roads. 			
Minimise impact to soils (contamination)	Site/ROW clearance	<p>Develop a Site Mobilization Plan (SMzP) that includes the following GIIP requirements and aligns with IFC EHS Guidelines: General:</p> <ul style="list-style-type: none"> ● Avoid total removal of vegetation of the whole Site where possible, e.g., around the edges of the Site and the substation and BESS site (as set out in the Biodiversity Management Plan) ● Refuelling plant and equipment (on-site) will be carried out in a designated area and on hard standing ground to prevent seepage of any spillages to soil/groundwater. ● Collection systems will be installed in these areas to manage spills, and fuels will be collected and reused, treated by incineration, or removed by a local contractor. ● Drip trays must be used when refuelling and servicing vehicles or equipment not on the designated refuelling hardstanding surface. ● Hazardous material storage will be on hardstanding and impervious surfaces, and the bulk storage facility will be bunded and more than 70m from the ABIS canal. ● Restrict storage and handling of hazardous materials and fuels to bunded areas of sufficient capacity to contain a release. ● Storage containers will be regularly checked and maintained ● Implement measures to address accidental leaks/spills of oil, fuel, chemicals, and wastes and manage hazardous materials 	EPC Contractor (subcontractors)	Construction	<p>REF00 Site Mobilisation Plan</p> <p>REF11 EPR MP</p> <p>Site inspection records</p> <p>Construction reports</p> <p>REF16 BMP</p>
Minimise impact to soils (degradation)	Site/ROW clearance	<ul style="list-style-type: none"> ● Preserve the VCA marked areas as defined in the BMP. ● Preserve areas between rows (approx. 200 ha). ● Demarcate specific tracks to site/ROW and track vehicles to ensure only demarcated routes are used. ● Confine traffic movement to designated routes. ● Control access to areas within the Site that are not required for construction. ● Define a designated hazardous materials storage area and ensure adequate security and secondary containment (bunding) to contain any spills. ● Restrict access to hazardous materials. ● Adopt GIIP (as defined in WBG EHS Guidelines: General and reflected in other sections of this ESMP) for management for pollution prevention from using machines and equipment, refuelling, storage and handling of hazardous materials and management of wastes. ● Designate a central maintenance and refuelling area on Site located on hardstanding. 	EPC Contractor (subcontractors)	Construction phase	<p>Site inspection records</p> <p>Construction reports</p> <p>REF00 Site Mobilisation Plan</p> <p>REF16 BMP</p>
Implement sustainable site clearance and rehabilitation practices to avoid impact on natural habitats (fixed sands) to avoid the “shifting sands” phenomenon.	Site/ROW clearance	<p>Develop a Site Mobilization Plan (REF 07) to address topsoil removal following sustainable land-use practices:</p> <ul style="list-style-type: none"> ● When stripping, stockpiling, or placing soil, do so in the driest condition possible and use tracked equipment to reduce compaction. ● Topsoil to be stripped to a thickness defined by depth below the surface and a distinct colour change. ● Clearly define topsoil and sub-soil stockpiles of different soil materials for reuse of topsoil. ● Keep soil storage periods as short as possible. ● Monitor soil restoration ● Reuse materials on-site wherever possible ● No imported soils or aggregates ● Regular checks and surveys for AIS every three months ● Organic topsoil (superficial layers) will be used on-site and near the Site for revegetation activities. 	EPC Contractor (subcontractors)	Plan – pre-NTP Construction phase	<p>Site inspection records</p> <p>Construction reports</p> <p>REF00 Site Mobilisation Plan</p> <p>REF16 BMP</p> <p>REF14 Hazardous Materials and Waste MP</p>

Objective	Project Activity	Action	Responsibility	Timescale	Monitoring / KPI
Minimise secondary impacts on soils from vegetation removal and works.	Site ROW rehabilitation	<ul style="list-style-type: none"> ● Rehabilitate the compacted area to support the return of the impacted area to the original state as quickly as possible following the completion of the works. This may require aeration of the topsoil, enrichment of the topsoil or reintroduction of selected species and shrubs. Do not rely on natural rehabilitation. ● Reflect natural gradient and relief when reinstating soils. 	EPC Contractor (subcontractors)	Construction phase	Rehabilitation plan REF16 BMP
Ensure appropriate handling, storage, and disposal of solid and hazardous waste to minimize impacts to groundwater, land, and workers.	Site/ROW clearance	<p>Prepare HMWMP to include the following GIIP requirements and to meet WBG EHS Guidelines: General:</p> <ul style="list-style-type: none"> ● Identify and characterize the source of all waste streams (hazardous and non-hazardous) and the proposed final disposal option (Site waste management) ● Define and demarcate dedicated temporary waste collection site at the worksite ● Perform due diligence and identify temporary waste storage and collection points (hazardous and non-hazardous) at the Site for coordinated onward transportation and disposal at a licenced facility. ● Identify waste reuse and recycling disposal routes to process waste streams (following Uzbek requirements) and set up agreements ● Identify construction waste landfill ● Obtain license and authority of final disposal locations ● Identify and contract authorized transportation company to take waste to the disposal facility (in particular hazardous waste) ● Define and establish a documentation management system for tracking waste (duty of care) ● Maintain a hazardous waste inventory. ● Segregate waste material on-site for disposal via the identified channels as per SWMP) ● All skips/waste storage to be suitably covered (to avoid dispersion of light materials by wind or filling of skip with rain) and waterproofing to avoid soil contamination from leachate. ● Hazardous waste must be designed according to GIIP (bundling, separating incompatible hazardous substations, etc.) as defined in WBG EHS Guidelines: General and in line with national requirements. Liquid wastes/oil/chemicals will be stored in tanks or drums in banded areas that can hold the larger of 110 percent of the largest tank or 25% percent of the combined tank volumes in areas with above-ground tanks with a total storage volume equal or greater than 1,000 liters and will be made of impervious, chemically resistant material according to national safety requirements and WBG EHS Guidelines: General (whichever is stricter). ● Implement good housekeeping and operating practices, including inventory control, to reduce waste from out-of-date materials, off-specification, contamination, damage, or excess to plant needs. 	EPC Contractor (subcontractors)	Plan – pre-NTP Construction phase	Site inspection records Construction reports REF14 Hazardous Materials and Waste MP
Prevent leaks, spills, and environmental incidents.	Site establishment & Construction	<p>Develop a spills response protocol (may be part of the wider EPRP), including requirements to:</p> <ul style="list-style-type: none"> ● Maintain an inventory of hazardous materials and specific procedures/ controls ● Maintain available copies on Site of Material Safety Data Sheets (MSDS) for all hazardous substances used during the Project: ● Establish hazardous materials storage areas that are located away from existing sensitive receptors and are secure from theft or vandalism, well-ventilated, and have suitable emergency response equipment (fire extinguisher, eye wash etc.) and PPE. ● Ensure spill kits are located and first response equipment at all work fronts. ● Ensure no hazardous materials are stored in large quantities at the work fronts or the central materials store and laydown area. 	EPC Contractor (subcontractors)	Plan – pre-NTP Construction phase	REF11 EPR MP including spills Response Protocol Site inspection records Construction reports
Minimise impact on Natural habitat	Site clearance	<ul style="list-style-type: none"> ● Identify vegetation compensation areas (VCA) to compensate for the loss of 649 ha of Natural Habitat per IFC PS6, and therefore subject to the “no net loss” mitigation standard. ● VCA areas to be protected during construction works and then enhanced as part of the NNL planning (see operational phase mitigation). 	Project Company	Plan – pre-NTP Construction phase	REF16 BMP NH compensation report

Objective	Project Activity	Action	Responsibility	Timescale	Monitoring / KPI
		<ul style="list-style-type: none"> ● Retain approximately 80% of habitat on site during site clearance. ● Seek to undertake limited enhancement of areas between the panel rows (refer to BMP for further information) 			
Minimise impact on habitats – General	Site clearance	<p>Develop Biodiversity Management Plan including the following requirements:</p> <ul style="list-style-type: none"> ● Preconstruction sensitive plant survey (Calligonum matteianum, C. molle, C. paletzianum) and development of replanting program (June 2023)⁹. (completed) ● Pre-construction tree count survey (in combination with the plant survey above) (following national requirements) (June 2023) (completed) ● Identify Vegetation Compensation Areas (VCA) for the purpose of future no net loss (NNL) planting and preserve for enhancement planting as per the BMP ● Preserve the areas between rows (approx. 200 ha) for enhancement planting ● And monitoring for including in the BMP ● Develop no net loss management plan (Calligonum matteianum, C. molle, C. paletzianum) as defined in BMP ● Establish a site nursery to support vegetation compensation planting ● All work is to be within the project site or ROW. ● Rehabilitate temporarily disturbed areas as soon as possible after construction activity is finished to minimize the risk of shifting sands. ● Minimize the use of trenches or other steep-walled excavations. ● Backfill open excavations as soon as possible after construction activity. ● Employ an E&S Biodiversity supervisor to be present on site during site preparation and excavation works to assure compliance with construction phase mitigation measures and to conduct daily searches of Work fronts and animal rescue from open trenches, as needed, focusing on Central Asian Tortoise. ● Ensure signage and training to prevent construction workers from poaching or harassing sensitive wildlife. ● Fence site before the start of construction works to avoid encroachment by mammals. ● For OHTL works, do not leave trenches open overnight unless they are fenced. ● Prohibit poaching (focusing on CITES species) and interactions with fauna and flora in the worker code of conduct. ● Worker/contractor training/awareness, supervision regarding impacts to animals and species protection. 	EPC Contractor (subcontractors)	Plan – pre-NTP Construction phase	REF16 BMP Site inspection records Construction reports
Raise worker awareness of the biodiversity risks	Construction works (PV, BESS and OHTL)	<ul style="list-style-type: none"> ● Add the following to the Project specific Worker Code of Conduct - "Workers are prohibited from: <ul style="list-style-type: none"> ○ Removing flora from the work area ○ Hunting any species ○ Interaction with large mammals ○ Penalties for infractions ● During the site induction, make workers aware of the following sensitivities: <ul style="list-style-type: none"> ○ What to do when encountering any of the following species: SEFG, Russian tortoise, snakes etc. ● Provide works with a visual reference sheet 	EPC Contractor (subcontractors)	Construction phase	REF 08 L&WC MP Site inspection records Construction reports
Manage potential unexpected discovery of	Substation, PV and OHTL foundation work	<ul style="list-style-type: none"> ● EPC Contractor to employ a local archaeologist to supervise excavation works (per the requirements of the Institute of Archaeology)¹⁰. 	EPC Contractor (subcontractors)	Construction phase	Contract with IOA

⁹ The Spring / summer flora survey planned for the time window when the seeds of Calligonum are ripe, and have not yet fallen from the parent plants will be used to provide further clarity on the distribution of these species in the ROW and inform the seed planting strategy and NNL compensation approach.

¹⁰ The identification of a suitably qualified archaeological team can be undertaken with the support of, or in coordination with, the local authorities/mahalla or khokimiyat.

Objective	Project Activity	Action	Responsibility	Timescale	Monitoring / KPI
archaeological remains/ artefacts		<ul style="list-style-type: none"> ● Establish a chance finds procedure ● Train workers on chance finds procedure during induction and all excavation works (via toolbox talks). ● Maintain a chance finds log. ● Carry out ongoing discussions with local community members about the cultural significance of the Site as part of broader public consultation exercises. 			REF 18 Chance finds procedure Toolbox talk logs Chance finds the register (if necessary)
Safeguard the wellbeing and improve the living standards of those whose livelihoods are involuntarily displaced.	Livelihood restoration	<ul style="list-style-type: none"> ● Implement ongoing livelihood restoration activities (if not already completed before construction) as per the LRP. ● Monitor impacted households for at least three years to ensure they have at least returned to their previous level of livelihood, if not improved their livelihood. ● Monitor the implementation of livelihood restoration activities ● Undertake livelihood restoration activities with all impacted households (the farm owner, herder households and herder employees' households). 	Project Company	Construction phase	REF06 LRP Close out report
Protect worker health and safety.		<p>Establish Occupational Health and Safety (OHS) Management Plan requiring:</p> <ul style="list-style-type: none"> ● Management measures for dust, occupational noise, falls from height, electrocution risks etc. ● Site risk assessment for all tasks to be undertaken on the Site. ● Communicate hazards and risks to all workers during setting-to-work briefings. ● Mandatory PPE, including steel-toe capped boots, overalls, hard hat, hi-vis vest, safety glasses, hard hat AND ear protection, gloves, and dust masks for specific tasks (e.g., welding). ● Worker Induction Program. ● Worker Code of Conduct. ● Training to all workers. ● OHS inspection and audits and ensure there is a corrective action process. ● Reporting occupational accidents, diseases, and incidents. 	EPC Contractor (subcontractors)	Construction phase	REF10 Occupational Health and Safety Plan Risk assessment REF 08 Worker Code of Conduct REF03 Training MP including: Worker Induction Program Training logs/ attendance sheets REF01 ESMS manual Audit reports Incident reports
Protect community health and safety.	All works	<ul style="list-style-type: none"> ● House workers from outside the project area or municipality in accommodation away from the immediate communities at Kirlishon and Kulchovdur as much as possible, thereby reducing potential social tension. ● Disclose community grievance mechanism to houses surrounding the worker accommodation. ● Prepare a plan/strategy to guard workers and community members against contracting communicable diseases. ● Develop a Worker Code of Conduct to be read and signed by all workers on the contract during the induction process. ● Include the worker code of conduct, requirements for addressing potential GBVH risks on the Project and setting out a zero-tolerance policy for the following: <ul style="list-style-type: none"> ○ Use of drugs, alcohol ○ Incidents of GBVH ● Security personnel to not be armed unless prior approval from Project Company ● Ensure the security plan includes requirements for vetting security guards, training on using force, security guard code of conduct etc. 	EPC Contractor (subcontractors)	Construction phase	REF08 L7WC MP inc. Worker Code of Conduct REF13 SMP including protocols for vetting of security guards Training logs/ attendance sheets Signs in place Meeting minutes/ attendance sheets

Objective	Project Activity	Action	Responsibility	Timescale	Monitoring / KPI
		<ul style="list-style-type: none"> ● Employ local security guards and female guards where possible. ● Establish signs across the Project Site and along roads to warn local community members and other external stakeholders of any risks and hazards, e.g., from site vehicles and electrical equipment. ● Establish a Community Grievance Mechanism as set out in Project SEP (Volume V). ● Hold meetings with local herders to explain risks and issues at the start of work. ● Provide cultural awareness training for all workers. ● Disclose the EPRP to community members that may be impacted in an emergency or will be required to assist (emergency services) during an emergency. ● Implement and disclose details of a community grievance mechanism, including GBVH requirements. ● Nominate a CLO for the construction and operations phases. ● Determine whether training for community members on migrant workers or communicative diseases is necessary and implement if needed (to be determined by the CLO). 			Number of grievances received
GBVH	All works	<ul style="list-style-type: none"> ● Provide training and awareness-raising on GBVH Policy to all employees (including sub-contractor employees). ● Nominate a dedicated person for receiving GBVH grievances and train on how to respond to incidents of a GBVH nature. ● Elaborate on GBVH referral pathways and mechanisms as part of the external grievance mechanism. ● Providing safe, secure, and separate living spaces and sanitary facilities for the male and female workers lockable sanitary facilities will be mandatory for women. ● Allow submission and investigation of anonymous sexual harassment complaints by workers and host community members and protect the confidentiality of the complainants. ● Work closely with the local authorities to investigate any complaints relating to GBVH in the host communities related to project workers. ● Provide targeted training (including life skills such as leadership and decision-making) and awareness-raising to vulnerable workers such as women. 	Project Company /EPC Contractor	Construction phase	REF19 GMP Training logs/ attendance sheets Number of GBVH grievances received
Labour wellbeing	All works	<ul style="list-style-type: none"> ● Require contractor (via EPC Contract) to conform to Masdar Human Resources (HR) Policy, Code of Ethics, Policy Against Bribery and Corruption, Recruiting Policy, Supply Chain (Procurement) Policy, and Communication Policy. ● EPC Contractor and Tier 2/3 sub-contractors to demonstrate functioning HR policies to meet with Lender requirements, ILO core conventions and Uzbek law in contractor contracts. ● Ensure all workers on the Project have a written project contract that would clearly specify their terms of employment, consistent with the local labour law and the IFC PS2. The terms of employment should be largely similar for all categories of the Project workers. ● EPC Contractor and subcontractors to provide contract templates for review to ensure their overall compliance with the applicable labour standards. ● Ensure that both migrant and local workers are engaged on substantially equivalent terms and conditions. ● Provide an HR onboarding for all workers and explain the contract terms as per EBRD PR2. ● Establish a Workforce Grievance Mechanism and ensure confidentiality and anonymity where required. ● Ensure appropriate welfare provisions (water, shelter, sanitary facilities, food) at the Site. ● Ensure all workers receive the appropriate training as per the training need analysis and matrix developed under the ESMS (note specific requirements for working within a substation or on live equipment). ● Undertake daily toolbox talks at all work fronts. 	EPC Contractor (subcontractors)	Construction phase	REF08 L&WC MP Worker contracts Training logs/ attendance sheets Grievance mechanism Number of grievances received Labour statistics

Objective	Project Activity	Action	Responsibility	Timescale	Monitoring / KPI
		<ul style="list-style-type: none"> ● See also requirements under Emergency Preparedness and Response. ● Provide all workers with notification of the duration of their contract at the start of work. ● Develop labour reporting statistics for all workers, including identifying labour statistics per worker category (local, regional, international) and the split between male and female workers. 			
Emergency preparedness - general	All works	<p>Develop EPRP with the following minimum requirements:</p> <ul style="list-style-type: none"> ● Identification of the emergency scenarios. ● Specific emergency response for each situation relevant to the Project. ● Emergency contacts and communication systems/protocols (including communication with Affected Communities when necessary). ● Outline of medical facilities and services required on-site in a Medical Services Procedure and a Casualty Evacuation Procedure. ● Assess local emergency services capabilities and identify gaps that may need to be filled with site-based emergency response capabilities in the form of a “capacity assessment” appended to the EPRP (for approval). ● Procedures for interaction with government authorities (emergency, health, environmental authorities), including names and contact details. ● Site plan indicating requirements for permanently stationed emergency equipment and facilities (e.g., first aid stations, firefighting equipment, spill response equipment and personal protective equipment (PPE) for the emergency response teams). ● Minimum requirements for trained medical professionals on-site, including first aid stations ● Develop protocols for the use of emergency equipment and facilities. ● Ensure clear identification of evacuation routes and Assembly Points (AP) for each work location highlighted on a site plan. ● Identification of training requirements for all employees and third-party providers. ● Emergency drills and their frequency are based on assigned emergency levels or tiers and an implementation schedule. ● Establish a site clinic to provide emergency first aid to employees capable of providing first aid response to electrocution, falls from height, etc. ● Develop medical evacuation procedures to the nearest A&E facility. 	EPC Contractor (subcontractors)	Construction phase	REF11 EPRP Site medical services in place Drill reports
Emergency preparedness – climate risks/natural hazards	All works	<ul style="list-style-type: none"> ● Undertake continuous monitoring of weather events to enable an early warning of any high winds, storms, dust storms, or extreme precipitation to enable workers to get to shelter. ● Establish worker emergency shelter at the Site and protocols for extreme heat stroke cases. ● During periods of high wind (15 km/h), dust-generating activities will not be permitted. ● Provide all workers with dust masks in the event of a localized dust event. ● Ensure sufficient supply of potable water at the work fronts (>3.5 L per worker per day). ● Ensure sufficient shelter/shade during summer months. ● Provide extra rest periods for workers when temperatures exceed 35 oC. ● Change the shift hours in line with the cooler hours. ● Ensure workers are not penalised for taking extra rest breaks during periods of extreme heat. ● Erect temporary shade at all work fronts for all workers. 	EPC Contractor (subcontractors)	Construction phase	REF11 EPRP Worker emergency shelters
Emergency preparedness – Spill response		<p>Prepare Spill Response Plan (may be part of the EPRP) and include appropriate training and requirements for spill prevention and cleanup equipment including:</p> <ul style="list-style-type: none"> ○ Use barriers (e.g., drip trays) to minimise impacts from spills or other potential leaks. 	EPC Contractor (subcontractors)	Construction phase	REF11 EPRP – Spill response procedure

Objective	Project Activity	Action	Responsibility	Timescale	Monitoring / KPI
		<ul style="list-style-type: none"> ○ All chemicals, fuels, and oils are stored at the construction camps and laydown area to be in designated areas in a secure and bunded facility. ○ No herbicide uses. ○ Do not refuel except at a dedicated refuelling area. ○ All concrete washout to take place at designated concrete washout area only. ○ All cement trucks must return to the batching facility or a dedicated wash-out facility to perform cement washout. ● Works with hazardous liquids must be performed over an area of hardstanding to avoid seepage to groundwater in the event of a spill. 			
Security	Site/ROW/Accommodation	<ul style="list-style-type: none"> ● Perform a Project Security Risk Assessment (SRA) Develop Security Management Plan including the following: <ul style="list-style-type: none"> ● Project security approach and systems, e.g., Security Barriers—such as fences, gates, locks, fortifying facilities, and means of access control ● Accommodation security ● Requirements for vetting security personnel, security uniform, ● Requirements for training of security guards on human rights and use of force, weapons handling (if needed), human rights and receipt of grievance ● Security Code of Conduct 	EPC Contractor/ Security contractor	Construction phase	REF13 including Project SRA Security Code of Conduct Training logs/ attendance sheets
Safeguarding community members and workers against communicable diseases (including COVID-19)	All works	EPRP include a procedure for managing communicable diseases, including but not limited to the following requirements: <ul style="list-style-type: none"> ● Measures to minimize the risk of contamination of site personnel from outside the project site (and construction camp), particularly local workers not residing in the accommodation camp. ● Measure to minimize the risk of transmission to the local community from site personnel. ● Emergency procedure in case of positive cases or outbreak (for affected personnel and potentially affected personnel). ● Procedures for managing the risk of transmission to the local community (especially the management of mixing workers from the community with those housed in workers' accommodation). ● Provide PPE to reduce the risk of spreading COVID-19, such as masks and hand sanitizer (as needed). 	EPC Contractor/ Security contractor	Construction phase	REF11 EPRP

6.5 Mitigation and management requirements – operation phase

Table 7: Mitigation and management requirements – operation

Objective	Activity	Action	Responsibility	Timescales	Evidence
Compliance with national requirements	O&M works	<ul style="list-style-type: none"> ● Obtain Stage 3 Environmental approval prior to the start of operation 	Project Company	Pre-operation	Stage 3 Resolution
Implement ESMS in line with ISO14001 (environment) and ISO45001 (health and safety).	O&M works	<ul style="list-style-type: none"> ● Ensure ESMS includes relevant requirements for E&S and H&S-related training, communication, monitoring, reporting, accident incident reporting, auditing, management review, and continuous improvement. 	Project Company	Annually	Annual ESMS audit
Operational management planning	O&M works	<ul style="list-style-type: none"> ● Develop Project O-ESMP. ● Ensure grievance mechanism is disclosed in project areas ● Maintain regular stakeholder engagement, at least annually. ● All maintenance work to have a specific risk assessment addressing waste, climate risks H&S, hazardous material management, emergency preparedness and response, and traffic risks) ● Implement waste management practices in line with O-ESMP and MASDAR ESMS ● Ensure correct PPE at all times 	Project Company	Annually	Project O-ESMP (REF 20) Annual reporting GM Log SE Log Risk Assessments (maintenance works) Waste documentation
Project occupational health and safety		<p>Establish Occupational Health and Safety (OHS) Management Plan (REF 15) requiring:</p> <ul style="list-style-type: none"> ● Management measures for dust, occupational noise, falls from height, electrocution risks etc. ● Site risk assessment for all tasks to be undertaken on the Site. ● Communicate hazards and risks to all workers during setting-to-work briefings. ● Mandatory PPE, including steel-toe capped boots, overalls, hard hat, hi-vis vest, safety glasses, hard hat AND ear protection, gloves, and dust masks for specific tasks (e.g., welding). ● Worker Induction Program. ● Worker Code of Conduct. ● Training to all workers. ● OHS inspection and audits and ensure there is a corrective action process. ● Reporting occupational accidents, diseases, and incidents. 	O&M Contractor (Project Company)	Operation phase	Project O-ESMP (REF 20) Occupational Health and Safety Plan Risk assessment Worker Code of Conduct Worker Induction Program Training logs/ attendance sheets Audit reports Incident reports
Protect community health and safety		<ul style="list-style-type: none"> ● Maintain Worker Code of Conduct to be read and signed by all workers on the contract during the induction process. ● Security personnel to not be armed unless prior approval from Project Company ● Ensure the security plan includes requirements for vetting security guards, training on using force, security guard code of conduct etc. ● Employ local security guards and female guards where possible. ● Maintain CLO and Community Grievance Mechanism (as developed during construction phase) ● Provide training and awareness-raising on GBVH Policy to all employees (including sub-contractor employees). ● Nominate a dedicated person for receiving GBVH grievances and train on how to respond to incidents of a GBVH nature. ● Elaborate on GBVH referral pathways and mechanisms as part of the external grievance mechanism. ● Allow submission and investigation of anonymous sexual harassment complaints by workers and host community members and protect the confidentiality of the complainants. 	O&M Contractor (Project Company)	Operation phase	Project O-ESMP (REF 20) REF04 SEP

Objective	Activity	Action	Responsibility	Timescales	Evidence
		<ul style="list-style-type: none"> ● Work closely with the local authorities to investigate any complaints relating to GBVH in the host communities related to project workers. ● Provide targeted training (including life skills such as leadership and decision-making) and awareness-raising to vulnerable workers such as women. 			
Labour wellbeing		<ul style="list-style-type: none"> ● Require contractor (O&M contractor) to conform to Masdar Human Resources (HR) Policy, Code of Ethics, Policy Against Bribery and Corruption, Recruiting Policy, Supply Chain (Procurement) Policy, and Communication Policy. ● Contractors to demonstrate functioning HR policies to meet with Lender requirements, ILO core conventions and Uzbek law in contractor contracts. ● Ensure all workers on the Project have a written project contract that would clearly specify their terms of employment, consistent with the local labour law and the IFC PS2. The terms of employment should be largely similar for all categories of the Project workers ● Establish a Workforce Grievance Mechanism (WGM) and ensure confidentiality and anonymity where required. ● Ensure appropriate welfare provisions (water, shelter, sanitary facilities, food) at the Site. ● Ensure all workers receive the appropriate training as per the training need analysis and matrix developed under the ESMS, including training on the WGM (note specific requirements for working within a substation or on live equipment). ● Develop labour reporting statistics for all workers, including identifying labour statistics per worker category 	O&M Contractor (Project Company)	Operation phase	Project O-ESMP (REF 20)
Emergency preparedness - general		<ul style="list-style-type: none"> ● Review and update EPRP (REF 14) for operation phase ● Undertake continuous monitoring of weather events to enable an early warning of any high winds, storms, dust storms, or extreme precipitation to enable workers to get to shelter 	Project Company	Operations phase - ongoing	Project O-ESMP (REF 20) Monthly O&M reporting
Security		<ul style="list-style-type: none"> ● Updated Security Management Plan (REF 19) 	Project Company	Operations phase - ongoing	Project O-ESMP (REF 20) Monthly O&M reporting
Minimize climate risk to workers performing O&M works.	O&M works	<ul style="list-style-type: none"> ● Monitor climate risks as part of maintenance works risk assessments ● Ensure sufficient supply of potable water at the work fronts (>3.5 L per worker per day). ● Ensure sufficient shelter/shade during summer months. ● Provide extra rest periods for workers when temperatures exceed 35 oC. ● Change the shift hours in line with the cooler hours. ● Ensure workers are not penalised for taking extra rest breaks during periods of extreme heat. ● Erect temporary shade at all work fronts for all workers 	Project Company	Operations phase - ongoing	Project O-ESMP (REF 20) Monthly O&M reporting
Ensure rehabilitation of disturbed areas is successful.	O&M works	<ul style="list-style-type: none"> ● Implement the biodiversity management plan requirement for habitat restoration for no-net loss. ● Monitor outputs 	Project Company	Operations phase – 5 years or as necessary	Project O-ESMP (REF 20) REF16 BMP Monthly O&M reporting
Ensure livelihoods are not adversely impacted in the long-term	O&M works	<ul style="list-style-type: none"> ● Monitor impacted households for at least three years to ensure they have at least returned to their previous level of livelihood, if not improved their livelihood. ● Monitor the implementation of livelihood restoration activities. 	Project Company	Operations phase	Monthly O&M reporting REF06 LRP Annual M&E report (livelihoods)

7 Monitoring and Reporting

7.1 Meetings

The Project will undertake the following meetings to be attended by a representative of the Project Company and the EPC Contactor as defined in the cESMS:

- Mobilisation E&S meetings
- Weekly E&S meetings (Site)
- Monthly E&S meetings

7.2 Inspections and audits

As part of the EPC-ESMS, the EPC Contractor must develop an environmental and social compliance program, including a schedule for E&S inspections, auditing and monitoring to ensure compliance with national and international best practice requirements in the E&S plans. The following activities will be included in the monitoring of the Project performance:

- Daily site walkover – EPC Contactor
- Spot checks and walkovers – Project Company
- Weekly site inspections – EPC Contractor
- Fortnightly E&S Site inspections – EPC Contactor and Project Company
- Weekly E&S audit – Project Company (audit of one of the ESMS plans/ procedures to ensure all plans are audited once every two months.
- Weekly EPC audits of subcontractor – EPC Contractor
- Independent labour audit (third party) for all subcontractors within 4 weeks of mobilisation on site – EPC Contractor
- Quarterly E&S Audit – Project Company
- Subcontractor E&S Completion Audit – EPC Contractor
- Operational audits (at least quarterly, reduced to annual depending on risk) – Project Company.

7.3 Reporting

The following reporting activities are required to be performed:

- Daily reporting (incidents, non-compliances) - EPC Contractor
- E&S weekly reports - EPC Contractor
- E&S monthly reports - EPC contractor

- E&S completion report (at the end of the construction phase) – EPC Contractor
- Quarterly ES Monitoring report (ESMR) (submitted to lenders) – Project Company (construction)
- E&S monthly report - Project Company (construction)
- Annual ESMR – Project Company (operation)
- Annual E&S report (for public disclosure) (construction & operation)
- E&S incident and deviation management report

The reporting will include (*inter alia*):

- KPIs for all monitoring activities and provisions for remedial actions, if required;
- EPC performance monitoring results, LRP implementation, Local Hiring and Gender
- Management Plan implementation, and demonstrating compliance with conditions of Environmental Approval and lender requirements;

The EPC Contractor and Project Company will establish and keep records of the activities and related documentation to prove its conformity to the E&S requirements of the plans.

7.4 Monitoring

Table 8 sets out the monitoring proposed for the Project. A key aspect of monitoring is defining relevant indicators. These are quantitative or qualitative measures of progress against set goals in the cESMS plans and procedures and E&S policy and are just as effective for measuring and monitoring the effectiveness of the cESMS. The Project Company will define KPIs for the Project in the cESMS.

Table 8: *Monitoring and reporting obligations - construction*

Monitoring	Parameters	Frequency & Duration	Location	Reporting obligations	Responsibility
Meteorology	Wind speed, temperature, rainfall.	Continuous	Site	Daily summary	EPC Contractor
OHS and environmental and social statistics (including COVID-19 statistics)	<p>Numbers of fatalities, accidents and injuries and near misses.</p> <p>Incident reporting and follow-up actions.</p> <p>Daily H&S inspections by qualified personnel.</p> <p>Construction and operations auditing, inspection and reporting schedule.</p> <p>Reviews of incident and accident reporting, drill reporting and any corrective actions identified, where relevant.</p> <p>Environment:</p>	Monthly	Site	<p>Monthly construction monitoring report.</p> <p>(Noted: the EPC contract defines immediate reporting obligations for a fatality or serious E&S incident)</p>	EPC Contractor

Monitoring	Parameters	Frequency & Duration	Location	Reporting obligations	Responsibility
Pollution control	<ul style="list-style-type: none"> - Number of reported spills (zero or downward trend to be maintained) - Number of reported incidents of concrete washout in undesignated area (zero) 				
Waste	<ul style="list-style-type: none"> - Weekly and monthly waste generation volumes for construction wastes (segregated by waste stream) - Operational waste streams - Waste contracts with authorised waste disposal facilities 	Monthly	Site	Monthly construction monitoring report	EPC Contractor

Monitoring	Parameters	Frequency & Duration	Location	Reporting obligations	Responsibility
	- Monthly volume of waste generated (per type)				
Resource Use	<ul style="list-style-type: none"> - Volume of construction water tankered to site. - Volume of potable water delivered to site. - No unauthorised release of contaminated or potentially contaminated water to ABIS canal or ground (zero) 	Monthly	Site	Monthly construction monitoring report.	EPC Contractor
Environment	Dust episodes, soiling of vegetation, dust resuspension on the roads and dust clouds at work fronts, efficacy of stormwater drainage system, ABIS canal quality (visual)	Daily (visual)	Site	Daily inspection checksheet	EPC Contractor

Monitoring	Parameters	Frequency & Duration	Location	Reporting obligations	Responsibility
Cultural heritage	<ul style="list-style-type: none"> - Log and report all chance finds identified. - Should items of cultural heritage be found on or near the Project site, these should be regularly monitored to ensure they are properly signposted, their buffer zones are maintained and that no harm has come to the items. 	As relevant	Site	Monthly	EPC Contractor
Labour and worker grievance statistics	Number of workers, gender of workers and if they are local or not and subcontractor statistics.	Weekly	Site	Monthly construction monitoring report	EPC Contractor
Labour accommodation	Compliance of accommodation against the labour accommodation plan	Monthly	Labour accommodation	Monthly construction monitoring report or accommodation audit report	EPC Contractor
Labour and working conditions	Review of working conditions, paysheets and payslips, leave	Monthly	Site	Monthly construction monitoring report or labour audit report	EPC Contractor

Monitoring	Parameters	Frequency & Duration	Location	Reporting obligations	Responsibility
	allocation, and interview with workers to verify findings.				
Security incidents	Security incidence. Incident reporting and follow-up actions.	Monthly	Site	Monthly construction monitoring report	EPC Contractor
Stakeholder engagement	Stakeholder engagement completed (stakeholder log) - Stakeholder engagement completed (stakeholder log) - Periodic focus groups with community members to identify any impacts related to influx of people and put together mitigation	Monthly	Site/local communities	Monthly construction monitoring report	EPC Contractor

Monitoring	Parameters	Frequency & Duration	Location	Reporting obligations	Responsibility
	measures, if identified.				
Grievances	- Number of community grievances received (grievance log). Responses and follow-up actions (e.g., Conduct noise monitoring in the event of a noise complaint or evidence of exceedance of community noise guidelines values)	Monthly	Site/local communities	Monthly construction monitoring report	EPC Contractor

Table 9: Monitoring and reporting obligations - operation

Monitoring	Parameters	Frequency & Duration	Location	Reporting obligations	Responsibility
OHS and environmental and social statistics (including COVID-19 statistics)	Numbers of fatalities, accidents, and injuries. Incident reporting and follow-up actions. Environment: waste, water use	Annually	Site	Annual operations monitoring report	Project Company
Labour statistics	Number of workers, gender of workers and if they are local or not.	Annually	Site	Annual operations monitoring report	Project Company
Labour and working conditions	Review of working conditions, paysheets and payslips, leave allocation, and interview with workers to verify findings.	Annually	Site	Annual operations monitoring report or labour audit report	Project Company
Security incidents	Security incidents	Annually	Site	Annual operations monitoring report	Project Company
Stakeholder engagement	Stakeholder engagement completed	Annually	Site/local communities	Annual operations monitoring report	Project Company
Grievances	Number of worker/community grievances received (e.g noise).	Annually	Site/local communities	Annual operations monitoring report	Project Company
Biodiversity	Hectares of temporarily disturbed soil.	Annually for the first five years	Site	Annual operations monitoring report	Project Company
Biodiversity	Monitor the effectiveness of off-site vegetation restoration/rehabilitation to	Annual for the first five years.	Site	Annual CH monitoring report and no net loss	Project Company

Monitoring	Parameters	Frequency & Duration	Location	Reporting obligations	Responsibility
	compensate for permanent habitat loss against NNL KPI indicators set out in the BMP.			report (including NNL calculation)	
Livelihood restoration	Livelihood restoration	For the first three years	PAC	Annual M&E report	Project Company

7.5 Document control

A complete and up-to-date E&S file of all relevant sources of information will be maintained by the designated E&S manager for all phases of the Project and by the Project Company and EPC Contractor.

This E&S file will be readily accessible and include, as a minimum, copies of the following documents:

- Current environmental permits and consents.
- All relevant national and international regulations, international guidelines and codes of practice.
- Current calibration certificates for all the equipment that requires calibration by an external organization.
- The latest version of the ESMP.
- Records for environmental monitoring (inspection forms) and audits.
- Record of the construction programme.
- Manufacturers' operating manuals for all the environmental monitoring equipment.
- Equipment maintenance and repair records.
- Correspondences in relation to environmental matters/permits, including internal and external.
- Minutes of relevant meetings.
- Training records (e.g., attendance records for inductions and environmental awareness training).
- Current workforce statistics (including gender and local/non-local) and emergency contact details for workers.

8 Stakeholder Engagement

All communication, as well as the stakeholders identified, is documented in the Project Stakeholder Engagement Plan (SEP) that is subject to public disclosure.

For the ESIA phase, a SEP has been prepared (ESIA Volume V - SEP) that presents a detailed plan for stakeholder engagement obligations for the pre-construction, construction, operation, and decommissioning phases. The Project is required to:

- Inform and consult with local communities and other relevant stakeholders before the development of the facility on potential impacts, management measures and potential opportunities.
- Publicize the Project grievance mechanism with local communities.
- Maintain meaningful dialogue through consultations and information disclosure with local communities and other relevant stakeholders.
- Develop a communication records procedure to log key information from and to stakeholders.

During construction, responsibility for the implementation of the requirements of the SEP will be the Project Company supported by the EPC Contractor. The EPC Contractor will appoint a dedicated Community Liaison Officer to manage the stakeholder relations defined in the Project SEP and any new obligations identified post-finalization of the ESIA. A Grievance Redress Committee will also be established by the Project Company.

Internal communication between the Project Company, EPC Contractor and workers must be defined in a Project Internal Communication Plan in the cESMS and EPC ESMS (as described above).

9 Grievance Mechanism

A community grievance mechanism has been defined and is described in the SEP. The Project Company will manage the grievance mechanism.

10 Budget

Indicative costs are provided in Table 10

Table 10: Indicative costs for PC / PMC implementation and supporting activities - construction

Requirements (PMC/SPV Construction)	Cost	Unit	Total	Assumptions
Labour				
Masdar staff inputs (covers supply chain management)	0		0	Construction (18months). Covered by existing salaries.
Project Company staff (HSSE Manager and CLO) (construction)	7,000	36	252,000	Construction (18months) / US\$ 7,000 per person per month
PMC Staff (E&S Manager) (construction)	5,000	18	90,000	Construction (18months) / US\$ 5,000 per person per month
Stakeholder engagement implementation and grievance management (including local hiring liaison) (excluding labour)	18,000	1	18,000	Construction (18 months). Labour included in Staff costs above, plus 1000 per month expenses.
Stakeholder engagement implementation and grievance management (including local hiring liaison) (excluding labour)	2,000	25	50,000	Operation (25 years)

Requirements (PMC/SPV Construction)	Cost	Unit	Total	Assumptions
Operational E&S manager	0	25	0	(masdar to define)
Operational CLO	0	25	0	(masdar to define)
LESC / permitting costs				
Stage 3 Approval submission Construction permits 9submisison fees)	15,000 0	1		One time Masdar to define Labour costs in team above
LESC costs	40,380	3	121,140	Bi-annually (need to do quarterly during construction and annually during operation - needs updating
Biodiversity Management Plan				
Land costs for offset	0	1	0	Not required at this time.
Baseline characterization and seed collection for 3 spp. of red listed Calligonum shrubs	2500	1	2500	one time
NNL implementation plan (labour) (inc., bird fatality chance finds)	15,000	5	75,000	per year.
NNL implementation costs (consultants, seeds, materials, water)	10,000	5	50,000	per year.
Offset monitoring and evaluation	4,000	12	48,000	3-year monitoring program (quarterly)
E&S Management				
Establish PC/SPV cESMS (including PC supporting management plans, training, inspections, audits)	0	0	0	Covered by labour costs above
Develop operational management plan				Covered by labour costs above
Community development	0	0	0	To be defined.
LRP implementation				
Vulnerability allowance (food basket) (H1, H2, and V1 to V7)	2,159	1	2,159	one off cost (split across 9 PAPs)
Livelihood restoration - Financial awareness training	2,502	1	2,502	one off cost
Livelihood restoration - Livestock management training	2,502	1	2,502	one off cost
Livelihood restoration - Agricultural training	1,001	1	1,001	one off cost
Livelihood restoration provision of saplings and seeds	117	1	117	one off cost (split across 9 PAPs)
Livelihood restoration provision of hand tools for agriculture	22	1	22	one off cost (split across 9 PAPs)
M&E report	15,000	1	15,000	3-year monitoring program (quarterly)
Third party inputs				
Local training (as defined in Labour Plan)	5,000	1	5,000	One time
Specialist input/studies (third party labour audit, ecology specialist)	35,000	1	35,000	One time
Institutional Strengthening and Capacity Building (for EPC Contractor/PMC)				

Requirements (PMC/SPV Construction)	Cost	Unit	Total	Assumptions
<i>Preparation of Training</i>	25,000	1	25,000	<i>One time (optional)</i>
<i>Trainer</i>	25,000	1	25,000	<i>One time (Optional)</i>
TOTAL			672544	

Appendix

11 Annex A: Project E&S Policy

[Insert Company Logo]

[INSERT PROJECT NAME]

[The Company] E&S Policy

The Project Company is committed to achieve a positive contribution to sustainable development and to protect Human Rights. This requires, *inter alia*, the protection of the environment and the wellbeing of its employees, contractors and the local community, through all stages of the project life cycle, as well as participative and transparent stakeholder engagement. To achieve these goals, the Project Company is committed to:

E&S Management

- Comply with applicable national and local E&S laws and regulations as well as permitting requirements, applicable International Conventions, international requirements, and Project specific E&S obligations including the applicable requirements of the IFC Performance Standards and Asian Development Bank (ADB) Safeguard Policy Statement 2009 (ADB SPS 2009).
- Identify, assess and mitigate potential impacts to the community, workers and the environment.
- Establish and maintain an Environmental & Social Management System (ESMS) which identifies objectives and targets, impacts, risks and hazards, responsibilities, and includes systems of monitoring and reporting as well as incident and accident reporting and investigation.
- Realize continual improvement in E&S performance by developing indicators, through monitoring and auditing performance, and by implementing corrective actions where needed.
- Report externally on E&S performance and encourage dialogue with employees, local communities and other stakeholders to promote awareness.
- Provide the necessary training and resources, which ensures that employees and contractors are made aware of this Policy and are adequately trained to manage the project E&S risks and impacts to meet the E&S responsibilities and commitments.
- Communicate our E&S Policy to our contractors, subcontractors and third parties and require compliance to it.
- Setup a Grievance Mechanism for workers and the community to express concerns without retaliation.

Environment

- Achieve a target of Zero significant environmental accidents.
- Set and achieve targets that promote the efficient use of natural resources.

- Minimize and manage all waste streams and where waste is generated ensure that it will be handled and disposed of safely and responsibly according to the waste mitigation hierarchy of “prevent, reuse, recycle”.
- Protect and conserve biodiversity.
- Promote sustainable management and use of natural resources through the adoption of practices that integrate conservation needs with the project.
- Address climate change and GHG-emissions impacts, minimize emissions, and enhance positive impacts.
- Avoid pollution of water, air and land
- Ensure safe management of hazardous substances.

Health and Safety (H&S), Labor and Working Conditions

- Commitment to adherence to core labor standards
- Achieve a target of Zero fatalities and Zero injuries.
- Strict compliance with the H&S rules and procedures defined for the project.
- Provide a place of work that is safe for workers and communities.
- Prohibition and zero tolerance to children and forced labor. Screening of contractors, subcontractors and supply chain on child and forced labor will be taken into account.
- Screen supply chain to minimize labor risks.
- Provide satisfactory working conditions and implement mechanisms to ensure that workers can meaningfully enjoy their rights.
- Promote a safe, equal, and inclusive workplace, ensuring a work environment free of harassment or discrimination on the basis of gender, nationality, religion, sexual orientation, or any other personal or cultural attribute.

Social

- Ensure community health, safety and security throughout all activities undertaken.
- Support and protect human rights.
- Ensure a positive contribution to local development and social impact.
- Provide satisfactory compensation and livelihood restoration for formal and informal land users affected by the Project.
- Maintain informed consultation and participation with stakeholders and affected communities on matters that affect them such as mitigation measures, sharing of benefits and opportunities, and ESMS implementation.
- Recognize the importance of women in development, consider gender-specific impacts and risks and promoting women’s rights.

- Ensure Zero tolerance to gender-based or any other type of violence, harassment, and any form of discrimination. Ensure gender equality among project workers and employees and promote the participation of women in the Project.

The Project Company will monitor and review this Policy on a regular basis to ensure that it continues to support and encourage a high standard of E&S performance.

[Signature] _____

Date: _____