PROJECT:P-SL-GB0-004 Lesotho Metropolitan Fiber Distribution Network (LEMOFI) Feasibility Study

COUNTRY: Lesotho

ENVIRONMENT AND SOCIAL MANAGEMENT PLAN (ESMP)

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REVISION RECORD SHEET

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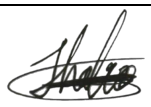
<tr><td>Signature</td><td>  </td><td>  </td><td>  </td></tr>
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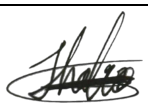
<tr><td>Signature</td><td>  </td><td>  </td><td>  </td></tr>
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LIST OF ACRONYMS AND ABBREVIATIONS

ADSS	All Dielectric Self – Supporting
AfDB	African Development Bank
AIDS	Acquired Immuno-deficiency Syndrome
CBD	Central Business District
C-ESMP	Construction Environmental and Social Management Plan
CRO	Community Relations Officer
COVID-19	Coronavirus Disease - 2019
DoC	Department of Culture
DoE	Department of Environment
DRWS	Department of Water Affairs & Rural Water Supply
DSTI	Daily Site Task Instruction
DWA	Department of Water Affairs
EA	Environmental Assessment
ECO	Environmental Control Officer
EHS	Environmental, Health and Safety
EHSG	Environmental, Health and Safety Guidelines
EIA	Environmental Impact Assessment
ESAP	Environmental and Social Assessment Procedures
ESS	Environmental and Social Standards
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESSM	Environmental and Social Safeguards Manager
EPP	Emergency Preparedness Plan

EPC	Engineering, Procurement, and Construction
FTTH	Fibre to the Home
GBV	Gender Based Violence
GoL	Government of Lesotho
GRM	Grievance Redress Mechanism
HIV	Human Immuno-deficiency Virus
HSMP	Health and Safety Management Plan
HSO	Health and Safety Officer
IFC	International Finance Corporation
ISPs	Internet Service Providers
KPIS	Key Performance Indicators
KV	Kilo-Voltage
LCS	Lesotho Correctional Services
LEC	Lesotho Electricity Company
LECC	Lesotho Electricity Company Communication
LEMOFI	Lesotho Metropolitan Fiber Distribution Network
LTI	Lost Time Injury
LWSP	Lesotho Water and Sanitation Policy
MNOs	Mobile Network Operators
MoICT	Ministry of Information, Communication and Technology
MS	Method Statement
MSDS	Material Safety Data Sheet
NCR	Non-Conformance Report
NGOs	Non-Governmental Organisations

NHTC	National Health Training Centre
NSDP	National Strategic Development Plan
NSP	Network Service Providers
OPGW	Optical Ground Wire
OS	Operational Safeguards
PAPs	Project Affected Parties
PE	Project Engineer
PM	Project Manager
PoPS	Points of Pressure
POPs	Points-of-Pressure
PPE	Personal Protective Equipment
RAP	Resettlement Action Plan
RD	Roads Directorate
RoD	Record of Decision
RRMP	Rehabilitation and Reinstatement Management Plan
SADC	Southern African Development Community
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan
SH	Sexual Harassment
SHEQ	Safety, Health, Environment and Quality
SIA	Social Impact Assessment
SPR	Social Progress Report
STDs	Sexually Transmitted Diseases
SWMP	Storm Water Management Plan

TOR	Terms of Reference
VIP	Ventilated Improved Pit-latrine
WASCO	Water and Sewage Authority
WB/WBG	World Bank/World Bank Group

DEFINITION OF TERMS

Alternative – A possible course of action, in place of another, that would meet the same purpose and need (of the proposal). Alternatives can refer to any of the following but are not limited to alternatives sites for development, alternative site layout, alternative designs, alternative processes and alternative materials.

Assessment – The process of collecting, organising, analysing, interpreting and communicating data relevant to some decision.

Audit – A verification process that is used to obtain information regarding the implementation of the ESMP by the Contractor. It is an objective tool used to make improvements at the workplace.

Berm – A barrier that is designed to divert surface water flow.

Biodiversity - The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity species, between species, and of ecosystems.

Bund – An impervious containment system for potential spillages from tanks/containers stored on site. The bunded area shall have a capacity greater than 110% of the total volume contained. The bunding shall be constructed of a material impermeable and resistant to the stored material.

Construction – Means erection or establishment of an infrastructure through activities that include but are not limited to excavation, masonry works, concrete batching, civil works, electro-mechanical works.

Contractor – Main Organisation appointed by the developer, to undertake the construction activities.

Consultation - Consultation refers to a two-way communication between the consultants, Project proponent and the affected communities.

Ecosystem Services - Defined as the benefits that people obtain from nature. These are typically divided into four categories.

- Provisioning services are the goods or products obtained from ecosystems, such as food, timber, medicines, fibre, and freshwater.
- Regulating services are the benefits obtained from an ecosystem's control of natural processes, such as climate, disease, erosion, water flows, and pollination, as well as protection from natural hazards.
- Cultural services are the nonmaterial benefits obtained from ecosystems, such as recreation, spiritual values, and aesthetic enjoyment.
- Supporting services are the natural processes that maintain the other ecosystem services, such as nutrient cycling and primary production.

Environment – Surroundings in which organisms operate, including air, water, land, natural resources, flora, fauna, humans and their interrelations. The environment is made up of: the soil, water and atmosphere.

Environmental Aspect – Means an element or function of a product that can interact with the environment during its life cycle.

Environmental Control Officer – Representative of the Contractor, responsible for day-to-day implementation of the ESMP.

Environmental Feature – Sensitive ecological feature within the Project Site, like wetland areas and remaining natural forest and riparian habitat.

Environmental Impact – The effect of an activity on the environment, whether desirable or undesirable. Undesirable or negative environmental impacts will result in damage and/or pollution or detriment to the environment, or danger to the public, whether immediate or delayed.

Environment and Social Management Plan – The ESMP for the project sets out general instructions that will be included in a contract document for the construction phase of the project. The ESMP will ensure the construction activities are conducted and managed in an environmentally sound and responsible manner. The ESMP also details the organisational structure required to ensure the effective implementation of the ESMP and measures to monitor and improve the application of the ESMP.

Environmental Specifications – Instructions and guidelines for specific construction activities designed to help prevent, reduce and/or control potential environmental implications of these construction activities.

Excavation – Involves removal of soil or rock from site to form an open face, hole or cavity using tools, machinery or explosives.

Footprint – Refers to the surface area of land directly affected by a proposed development or activity. Directly related to the physical extent and size of the development or activity.

General Waste – Domestic and non-hazardous waste as well as builder's rubble e.g., paper, plastics, food, cans, etc.

Ground-truth – to check the design on the site and make sure the design interacts with site sensitivities on the ground, as intended in the design.

Habitat - The environmental or ecological area in which an animal, plant species or other organism lives.

Hazardous Waste – Any organic or inorganic element or compound that because of its toxicological, physical, chemical or persisting properties, may exercise detrimental acute or chronic impacts on human health or development.

Hazardous Substance – Any substance that is of risk to health and safety, property or environment. Hazardous substances typically include, but are not limited to:

- Human excrement, fuel, lubricating oils, hydraulic and brake fluid, acids, paints, anti-corrosives, insecticides, pesticides, detergents, cement, etc.; and
- By-products and wastes associated with the use of hazardous substances as well as potentially hazardous items such as spent batteries, old oil filters, light bulbs, circuit boards, sharp objects etc. which requires special collection and handling.

Project Area - The area within which most of the project impacts are likely to be expressed.

Land Use – The activities that take place within a given area or space.

Local community - Community within the Project's Area of Influence.

Method Statement – A written submission by the Contractor to the Project Engineer in response to the specifications setting out the plant, materials, labour, timing and method the Contractor proposes using to carry out an activity. The Method Statement shall cover applicable details regarding:

- Construction procedures
- Materials and equipment to be used
- Getting the equipment to and from site
- How the equipment/material will be moved while on site
- How and where material will be stored
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or solid material that may occur
- Timing and location of activities
- Compliance/non-compliance with the specifications and
- Any other information deemed necessary by the Project Engineer

Mitigation – Measures designed to avoid, reduce or remedy adverse negative impacts.

Modified Habitat - An area that may contain a large proportion of plant and/or animal species of non-native origin, and / or where human activity has substantially modified the primary ecological functions and species composition.

Monitoring – The process which ensures that the environmental requirements stipulated in the ESMP are being complied with and allows for on-going impacts to be tracked in order to measure the effectiveness of the mitigation. The repetitive and continued observation, measurement and evaluation of environmental data to follow changes over a period of time to assess the efficiency of control measures.

Natural Habitat - An area composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary functions and species composition.

Proponent – Ministry of Energy – Lesotho Electricity Company – Communication (LECC)

Public – Any individual or group concerned with or affected by the project and its consequences.

Public Participation Process - The public participation process (PPP) is a requirement of Lesotho's EIA guidelines (2009) that requires all Interested and Affected Parties (I&APs), including affected communities, to be consulted during the Environmental Impact Assessment (EIA).

Reasonable Measures – Measures that a reasonable (ordinary) person would regard necessary for the specific purpose.

Rehabilitation – The return of a disturbed area, feature or structure to a state that approximates to the state (where possible) that it was before disruption, or to an improved state.

Remediation – Measures implemented to clean-up a polluted environment to a stable state in order to avoid long-term leaching/spread of pollutants or health risks; or repair an altered/disturbed environment to avoid long-term visual scarring, safety risks, erosion and further degradation and secondary impacts.

Sensitive Habitat – A sensitive area or environment can be described as an area or environment where a unique ecosystem, habitat for plant and animal life, wetlands or conservation activity exists or where there is a high potential for ecotourism.

Servitude – A servitude is a right to access which allows a local authority/ proponent to a property for inspection or installation of electricity cables and so on. It is registered against the title deed.

Stakeholder Engagement Process - The stakeholder engagement process is equivalent to the statutory required 'public participation process' referred to in Lesotho's EIA Guidelines (2009) but is used in this report as it infers a wider range of stakeholders; notably the authorities/ international governments who are not considered to be 'public'. Stakeholder engagement is aligned with international good practice terminology and also indicates on-going, proactive management of stakeholders and their concerns throughout the operational life of the Project. PPP refers only to the process undertaken for the ESIA.

Stakeholder Engagement Plan - The Stakeholder Engagement Plan (SEP) execution plan for ESIA stakeholder engagement activities. The SEP details the method and approach of stakeholder consultation, timeframes, communication mechanisms and tools, as well as monitoring, recording and tracking of stakeholder issues during the ESIA process.

Stockpile – includes any heap, pile and accumulation of any substance where such substance is stored as a product or stored for use at any activity.

Workforce – people employed by the proponent or the contractor, persons involved with project activities including permanent, contract, or/and casual labour.

Executive Summary

The Government of the Kingdom of Lesotho is committed to fostering a competitive telecommunications sector and expanding broadband access across the nation. However, the sector is currently dominated by Mobile Network Operators (MNOs), and the high costs associated with building new infrastructure have hindered smaller entrants from establishing a foothold. This lack of competition has led to high data and broadband prices, preventing many citizens from accessing affordable broadband and participating fully in the 4th Industrial Revolution.

PROJECT LOCATION

The proposed Lesotho Metropolitan Fiber Distribution Network Project will be implemented across 10 districts of Lesotho, encompassing a diverse range of urban, peri-urban, and rural environments. This project will be implemented in a phased off approach as outlined below:

- **Year 1: Berea:** Teyateyaneng. **Leribe:** Maputsoe (Including Nyenye). **Mafeteng:** Mafeteng. **Maseru:** Highway- Central-IEMS. **Maseru:** Maseru Industrial. **Maseru:** Parliament - Maseru Mall. **Maseru:** A2 - Lekhaloaneng - Matala
- **Year 2: Leribe:** Hlotse. **Butha Buthe:** Botha Bothe. **Mohale's Hoek:** Mohale's Hoek. **Mokhotlong:** Mokhotlong Town. **Thaba Tseka:** Thaba Tseka. **Maseru:** Thetsane Industrial
- **Year 3: Maseru:** Old Europa – Downtown. **Maseru:** Tikoe Industrial. **Quthing:** Quthing – Moyeni. **Qacha's Nek:** Qacha's Nek Town.

PROJECT COMPONENTS

Network Upgrades: The project includes upgrading existing network infrastructure, increasing backbone capacity and improving network resilience.

Ring Arial Fiber Cable Network: The project involves the deployment of new All Dielectric Self-Supporting fibre (ADSS) utilizing LEC 33kV and 11kV transmission lines and distribution poles. The selection of cable type has been based on terrain, existing infrastructure, and environmental considerations.

The ADSS will be strategically located and primarily aligned along existing infrastructure corridors, such as roads, utility lines, and telecommunications routes, to minimize environmental disturbance and reduce the need for new land clearances.

Distribution Arial Fiber Cable Network: consist of Backhaul Fibre, feeder fibre, poles, micro-ducts, distribution fibre, 1:2 splitters, 1:4 splitters, 1:8 splitters, drop cable, fibre distribution terminals, fibre access terminals

Points of Presence (POPs): Strategic placement of Points of Presence (POPs) will serve as aggregation and distribution nodes for the fibre network. The project will leverage existing LECC POPs where feasible and establish new POPs to optimize network coverage. Each POP will comprise of outdoor cabinet housing active network equipment, including Optical Transceivers, Routers, Plinth, Switch, Environment Monitoring System, Electrical Distribution, Rectifier and Battery.

POLICY, LEGAL AND ADMINISTRATIVE FRAMEWORK

The implementation of the CERC project will be guided by the applicable Government of Lesotho's, World Bank Environmental and Safeguard Policies, and the international policies, legal and regulatory frameworks, listed in **Table A** below.

Table A Project Legislative Framework

National Legislation, Policies and Strategies	International Treaties and Conventions	International Safeguards Standards
• Environmental Act No. 10 of 2008 • Mines And Minerals Act No.4 of 2015 • Water Act No 15 of 2008 • Local Government No. 5 of 2004 • Local Administration Act No. 13 of 1969 • National Heritage Resources Act No.2 of 2012 • Trafficking Act No. 8 of 1981 • Roads Directorate Act No. 16 of 2010 • Legal Capacity of Married Persons Act of 2006 • Sexual Offence Act No. 3 of 2003 • Anti – Trafficking in persons Act No 1 of 2011	• Basel Convention on the control of Transboundary Movements of hazardous Wastes and their disposal (1989) • Convection on Biological Diversity (1992) • Revised Convention on Conservation of Nature and Natural Resources, 2004 • International Labour Organization Convention 1998 • Convention on Rights of the child 1990 • Protocol to Suppression and Punish Trafficking in Persons, Especially Women and Children	• African Development Bank Operational Safeguards 2023 • International Finance Corpo ration (IFC) Performance Standards 2012 • FIDIC HIV/ AIDS Guidelines 2021 • Environmental, Health and Safety Guidelines (EHS Guidelines) 2007

• Workmen's Compensation Act No. 13 of 1977 • Labour Act 2024 • Occupational Safety and Health Act 2024 • Public Health Order 1970 • Weed Eradication Act No. 18 of 1969 • Town and Country Planning Act No. 11 of 1980 • Environmental Policy 1998 • Gender Development Policy 2023 • Lesotho Water and Sanitation Policy 2007 • Lesotho Communications Policy 2008 • Lesotho Environmental Impact Assessment Guidelines 2010 • National HIV and AIDS Strategic Plan • Lesotho Communications Policy 2008		

PROJECT CATEGORIZATION

The LEMOFI project is a Fibre Network expansion project and falls under **Item 15** "***Communication facilities, including telephone, television, and radio transmission masts"*** in the First Schedule Part A of the Environment Act No.10 of 2008 of the Kingdom of Lesotho, hence require a full ESIA for it to be implemented. However, LEMOFI Project utilises already existing electricity supply infrastructure therefore, its footprint is very minimal and does not require a comprehensive ESIA with specialist studies.

Furthermore, the proposed LEMOFI project is to be funded by the African Development Bank (AfDB) and falls under **Category 2** according to AfDB screening checklist and triggers ESMP.

ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION

Risks/Impacts anticipated as a result of project activities include, inter alia: dust; soil erosion; loss of vegetation; water, and air pollutions; increased generation of waste; occupational health and safety; community health and safety; vandalism etc.,; community conflicts that may result due to unfair hiring practices; temporary disruption of social activities; and increased GBV/SEA/H among project workers and project communities.

The anticipated risks/impacts are expected to be manageable through implementation of the mitigation measures outlined in this ESMP, which include among others; appropriate use of Personal Protective Equipment (PPE); securing or fencing of construction areas with safety signs installed; implementation of erosion control measures; no clearance of sites prior to approval and surveys; proper management of sediment (use of sediment screens), and machine/vehicle waste fuels (spill controls measures); rehabilitation of sites at the end of the construction works; proper management of all forms of waste; sensitization of workers and communities on GBV, SEA/H, HIV/AIDs management protocols; and continuous engagement of communities to ensure no disruption of other social activities and services. Therefore, all project workers, including contractor staff shall be required to adhere to the requirements, and prescribed risks/impacts mitigation measures.

INSTITUTIONAL ARRANGEMENT FOR ESMP IMPLEMENTATION

The ESMP implementation will be led by LECC, through the Project Manager, LECC will have to engage Environment and Social Safeguards Specialist (ESSS). LECC will also engage a Project Supervision Consultant (PSC), who will supervise all the LEMOFI projects under direct supervision LECC Project Manager (PM). The key personnel of the PSC will be Resident Engineer, and Environment and Social Safeguards Manager. The PSC will supervise the project contractors who are also required to engage a full time Environment Control Officer (ECO), Health and Safety officers (HSO), and the Community Relations Officer (CRO) to implement the requirements of the ESMP on daily basis.

CAPACITY BUILDING

Successful implementation of the ESMP depends on the capacity of the key environment and social implementation team, and the project supporting staff. As a result, the following capacity building activities will be developed for LEMOFI: Capacity building for LECC, which include, among others engagement of the Environment and Social Safeguards Specialist and training on SEA/H and GRM. Training for Project Supervision Consultant and construction contractors and which covers topics such as environment, health and safety at workplace, HIV/AIDS, GBV,

SEA/H risks at the workplace, implementing project GRM, waste management and other topics that the Project Manager may see necessary.

MONITORING AND REPORTING REQUIREMENTS

The following monitoring and reporting framework will be adopted for effective implementation of the ESMP:

- Adaptive management – the ESMP allows for continuous review and flexibility in environmental and social management decisions made on the Project.
- ESMP periodic monitoring and reporting by LECC, and PSC and Contractors ESS team will continuously monitor and report on the performance of the project ESMP from site establishment, and construction phase on weekly and monthly basis using the monitoring tools. E&S audit shall be undertaken quarterly, and reports shall be shared with the African Development Bank (AfDB).
- ESMP monthly monitoring and reporting by PSC – the PSC shall prepare and submit to LECC monthly report on the construction works, planned works, environment and social safeguards compliance, and expenditure at the end of each calendar month.
- ESMP monitoring and reporting by contractor – All LEMOFI contractors shall be required to prepare a monthly report, guided by weekly and monthly ESS monitoring checklist (**Appendix 12, 13, 14**) that the contractor is required to fill, verified and signed by the PSC.

INFORMATION DISCLOSURE AND STAKEHOLDER CONSULTATIONS

The African Development Bank and the Government of Lesotho's environmental procedures requires that the environment and socials safeguards documents are disclosed to the general public and the project affected persons for review and inputs. All the LEMOFI social and environment safeguards documents especially the ESIA and ESMP will be disclosed through LECC and AfDB websites as well as notices in newspaper on where to acquire the hard copies.

Stakeholder Engagements

The ESMP requires that public consultation and stakeholder engagement is carried out continuously throughout the lifetime of the project as a means of gathering information on public concerns, issues, perception, fears and suggestions on proposed projects. The consultations shall be conducted in appropriate means convenient to different types of stakeholders, taking into consideration the vulnerable groups, such as people with

disability, elderly, etc., and in appropriate language including the local language of the affected communities.

Grievance Redress Mechanism (GRM)

The GRM will be implemented, and project affected persons be made aware of the procedures as a formal avenue for affected groups and all other stakeholders to engage with the Project. The following GRM framework will be implemented:

- **Grievance redress process** – the grievance redress process will be well defined and all stakeholders shall be made aware of the process, which include: ensuring that a number of uptake channels are used to identify and accept the grievance, all grievances are logged in the grievance register (**Appendix 8/9**), and the AP receive acknowledgment of receipt within 4-7 days; all grievance are responded to in timely and fair manner following the appropriate handling steps; and all responses are signed off by the provider and AP;
- **Establishment of grievance redress committee** – each project site shall have a grievance redress committee, established through coordination of the site CRO, and shall comprise of (as the minimum), LECC Social and Environment Safeguards Specialist, Contractor representative, Community representative, local active NGOs representative, etc. the GRC will be responsible for handling and implementation of the project GRM at the project level, prior to referral of the grievances to the Ministry of Energy (MoE), through LECC when necessary.
- **Ombudsman/court of law** – the GRM shall allow for connection and referral of the project grievances to the national legal systems, if the AP is not satisfied with the provided resolution or find it necessary to do so.

ESMP IMPLEMENTATION BUDGET

The ESMP budget for LEMOFI project is estimated at **USD 258,146.38** and is largely operational.

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1.0 INTRODUCTION

The Government of the Kingdom of Lesotho is committed to fostering a competitive telecommunications sector and expanding broadband access across the nation. However, the sector is currently dominated by Mobile Network Operators (MNOs), and the high costs associated with building new infrastructure have hindered smaller entrants from establishing a foothold. This lack of competition has led to high data and broadband prices, preventing many citizens from accessing affordable broadband and participating fully in the 4th Industrial Revolution.

To address these gaps, the Lesotho Metropolitan Fiber Infrastructure Expansion Project (LEMOFI) should focus on developing comprehensive fibre distribution networks in towns and metropolitan areas to improve access and promote competition. The design should account for existing fibre coverage from Econet, Vodacom, and the Lesotho Electricity Company (LEC), whose network primarily follows long-distance transmission lines. Additionally, it should consider other local ISPs with smaller or expanding fibre deployments to ensure a more integrated infrastructure.

1.1 Project Background

Currently, LEC's fibre infrastructure is primarily laid along long-distance electricity transmission lines, which typically do not extend into commercial and residential areas. To address this limitation and make these services more accessible to users, it is imperative to expand fibre distribution networks within these urban and suburban areas. The Project Implementing Unit (PIU) is the LEC Communications (LECC) which was established in 2015, as a special purpose vehicle by the Government of Lesotho through Lesotho Electricity Company (LEC), to commercialize existing fibre optic infrastructure deployed on LEC’s network.

LECC’s dark fibre network is almost entirely based on LEC’s fibre infrastructure. Smaller sections of the network are constructed on LEC’s 11kV distribution network and are owned directly by LECC. To connect distant substations, LEC uses Optical Ground Wire fibre (OPGW) (usually on 88kV and 132kV lines, rarely on 33kV) whereas for connecting substations within a metro area like Maseru, All Dielectric Self-Supporting fibre (ADSS) is more commonly used (33kV lines). ADSS is also

exclusively used for pole attachments. OPGW is generally stronger and more reliable than ADSS. The fact that LEC's fibre runs on electricity lines makes it less prone to vandalism because of the inherent danger associated with high-voltage electricity. This is one of the factors which make it attractive for Unified Licensees.

LECC has a total of six (6) Points of Presence (POPs) at LECC Offices (New Europa), Mabote Substation, Maputsoe Substation, Teraco Isando, MS07 Mini substation (Ha Foso), and at the Lesotho Internet Exchange Point (LIXP) (hosted at the LCA building). Mabote Substation is the designated central location of LECC's network, considering its centrality concerning LEC's electricity network. Backbone links between LECC Offices, LIXP and Mabote Substation are 40 Gbps while the link from Mabote to Maputsoe is 10 Gbps.

LECC currently has 2 x 1Gbps IP Transit links from Cogent and Afr-IX and 2 x 1Gbps Layer 2 transport from Broadband Infraco (BBI) and Openserve. LECC is currently deploying pilot Fiber to the Home (FTTH) network at Ha Foso covering 2.5 square kilometres and 904 house passes (Density = 368 houses/km2). An estimated 110 km of OPGW fibre will be rolled out through the Ministry of Information, Communications, Science, Technology and Innovation funding (loan from the African Development Bank - AfDB) between Roma and Thaba Tseka with multiple drop-offs throughout the route – valued at approximately LSL32m.

The government has realised that new and smaller Network Service Providers (NSPs) and Reseller Internet Service Providers (ISPs) have had difficulties in entering and succeeding in Lesotho's telecommunications market which is currently dominated by Unified Licensees (providers of mobile and fixed network services – voice and data). The most significant barrier to entry for NSPs and ISPs is the prohibitively high cost of deploying their own infrastructure. The resulting lack of competition within the telecommunications market leads to relatively high data costs for Basotho.

LEC's existing fibre infrastructure runs on long distance electricity transmission lines which do not typically run within business and residential areas. To bring these

services closer to users, it is necessary to deploy fibre distribution networks in ten districts of the country within business and residential areas.

1.2 LEMOFI Objectives

The primary objective of the LEMOFI is to determine:

- **Technical Feasibility:** To review existing designs and specifications for the national fibre network, focusing on infrastructure that expands coverage into urban and suburban areas, to propose an optimised network design and architecture, including technology options and infrastructure requirements.
- **Regulatory and Legal Framework impact:** To review the regulatory telecommunications laws, and compliance requirements impacting the LEMOFI project.
- **FTTx network coverage gaps: To** Identify coverage gaps, particularly in towns and residential areas, and provide recommendations for extending the network into these areas.
- **Recent technological advancements and best practices** – To assess the FTTH and FTTB models, and the use of OPGW and ADSS fibre and associated technology compliant with international standards and best practices.
- **Environment and Social:** Undertake an ESIA and prepare the associated ESMP to inform all stakeholders of the potential environmental and social risks associated with the project, and inform the detailed design based on findings of the study.

1.3 Project Categorization

The LEMOFI project is a Fibre Network expansion project and falls under **Item 15** "***Communication facilities, including telephone, television, and radio transmission masts"*** in the First Schedule Part A of the Environment Act No.10 of 2008 of the Kingdom of Lesotho, hence require a full ESIA for it to be implemented. However, LEMOFI Project utilises already existing electricity supply infrastructure therefore, its footprint is very minimal and does not require a comprehensive ESIA with specialist studies.

Furthermore, the proposed LEMOFI project is to be funded by the African Development Bank (AfDB) and falls under **Category 2** according to AfDB screening checklist and triggers ESMP. The ESMP provides the management framework for the implementation of measures to mitigate the environmental and social impacts identified in the Environmental and Social Impact Assessment (ESIA). It supports the responsible planning, execution, and monitoring of the Project by national and international environmental and social standards.

The ESMP outlines the following key components:

- Lesotho Electricity Company Communication's (LECC) Environmental and Social Policy.
- The legal requirements, environmental and social standards, and guidelines that the ESIA and ESMP have followed and will comply with.
- The organizational structure required to implement the ESMP, including the main parties involved and their respective roles and responsibilities.
- The specific plans and programmes to be carried out by the Engineering, Procurement, and Construction (EPC) Contractor during the Project Preparation and Construction Phase, and those to be implemented by the Lesotho Electricity Company Communication (LECC) throughout all Project phases.
- The monitoring and reporting requirements necessary to track compliance and performance.
- The estimated budget and implementation schedule for the ESMP.

This ESMP has been developed in accordance with Environmental Act (2008), the African Development Bank's Integrated Safeguards System (ISS, 2023), Operational Safeguard 1 (OS1), and the International Finance Corporation (IFC) Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts (2012). As a living document, the ESMP will be implemented through the Health, Safety, Environmental and Social (HSES) Management Systems of both the EPC Contractor and LECC. It will be periodically reviewed, updated, and refined based on feedback from monitoring activities, stakeholder engagement, and evolving project conditions.

1.4 Project Location

The proposed Lesotho Metropolitan Fiber Distribution Network Project will be implemented across 10 districts of Lesotho (**Figure 1**), encompassing a diverse range of urban, peri-urban, and rural environments. This project will be implemented in a phased off approach as outlined below:

- **Year 1: Berea:** Teyateyaneng. **Leribe:** Maputsoe (Including Nyenye). **Mafeteng:** Mafeteng. **Maseru:** Highway- Central-IEMS. **Maseru:** Maseru Industrial. **Maseru:** Parliament - Maseru Mall. **Maseru:** A2 - Lekhaloaneng - Matala
- **Year 2: Leribe:** Hlotse. **Butha Buthe:** Botha Bothe. **Mohale's Hoek:** Mohale's Hoek. **Mokhotlong:** Mokhotlong Town. **Thaba Tseka:** Thaba Tseka. **Maseru:** Thetsane Industrial
- **Year 3: Maseru:** Old Europa – Downtown. **Maseru:** Tikoe Industrial. **Quthing:** Quthing – Moyeni. **Qacha's Nek:** Qacha's Nek Town.

The project area has varied topography and environmental sensitivity:

- **Mokhotlong**, **Thaba-Tseka**, **Qacha’s Nek**, and **Quthing** are in sloping highland regions, characterized by rugged terrain and limited accessibility.
- **Maseru**, **Leribe**, **Berea**, **Mafeteng**, **Mohale’s Hoek**, and **Butha-Buthe** cover areas with moderate to high vulnerability to soil erosion, particularly where land is already degraded.

This geographic and environmental diversity presents both logistical challenges and opportunities for sustainable development. Special attention will be given to the sensitive ecological zones and erosion-prone areas to ensure that installation activities do not exacerbate existing vulnerabilities. By utilizing existing infrastructure corridors and applying best practices in environmental management, the project aims to provide robust digital connectivity while minimizing its ecological footprint across Lesotho's ten districts.

Specific areas’ Ring and Distribution Network Maps have been presented in **Figures 2 - 19**.

Figure 1 Project Location

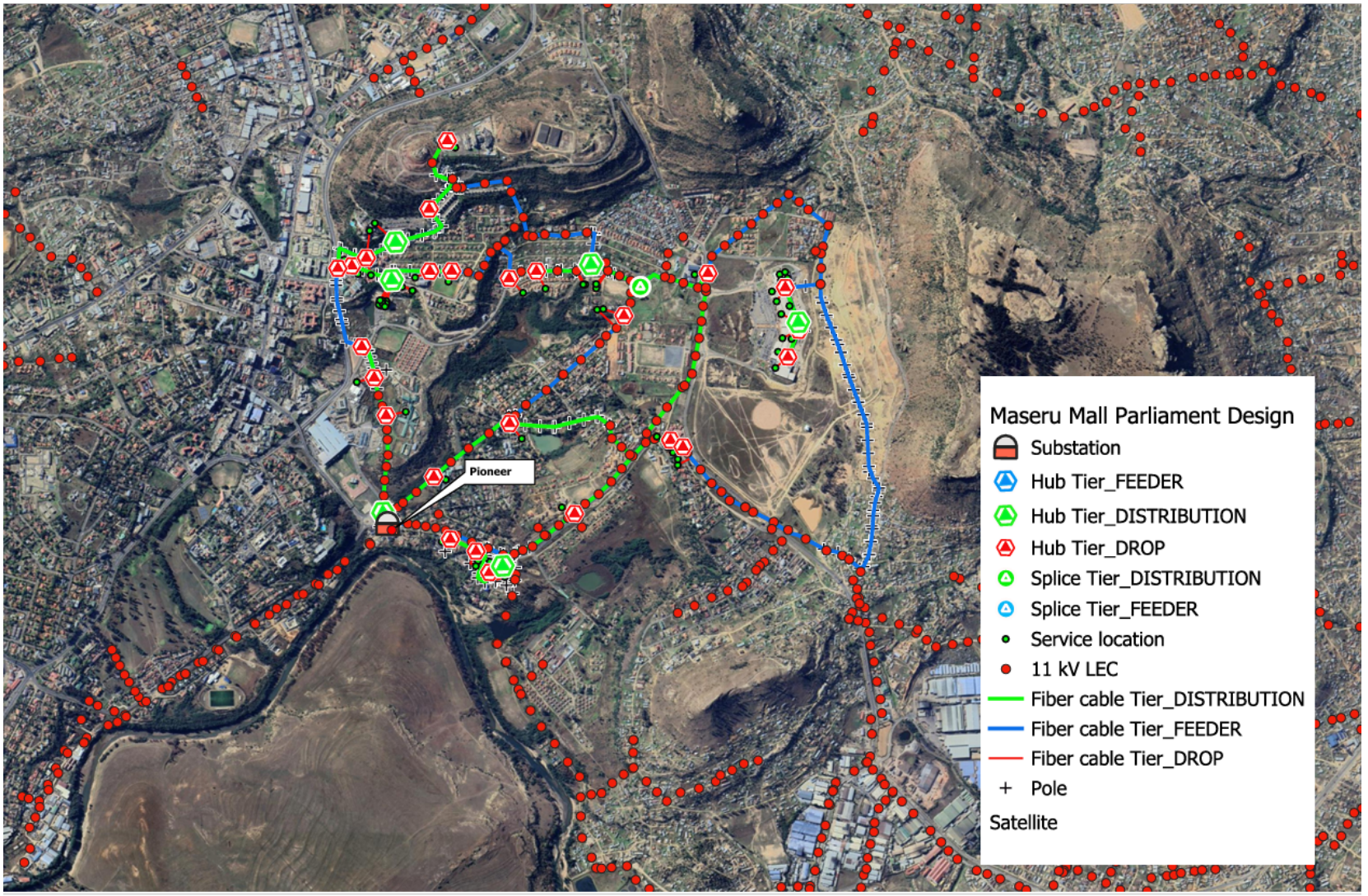

Figure 2 Parliament and Maseru Mall Ring Distribution Layout

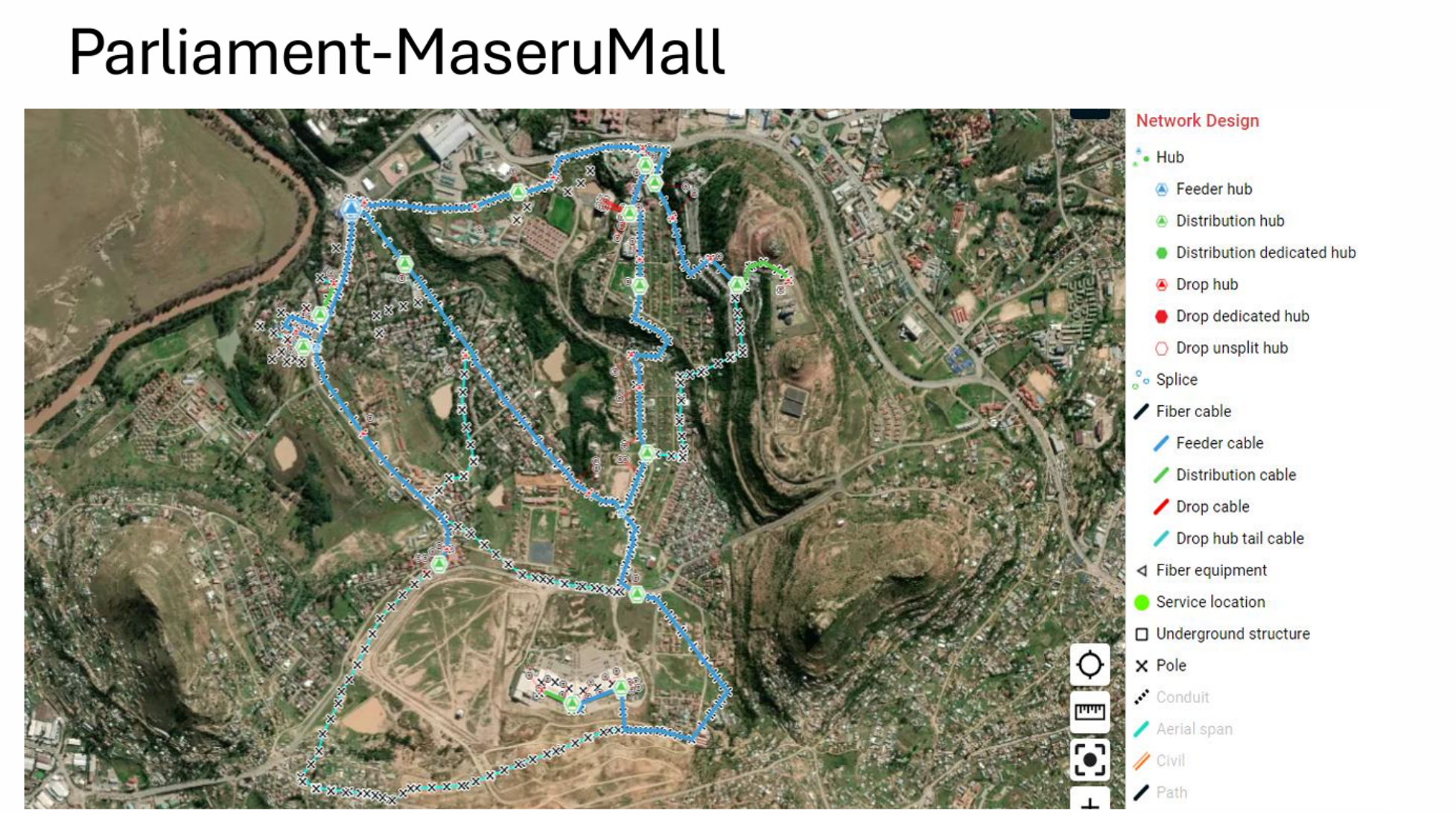

Figure 3 Parliament and Maseru Mall Design Layout

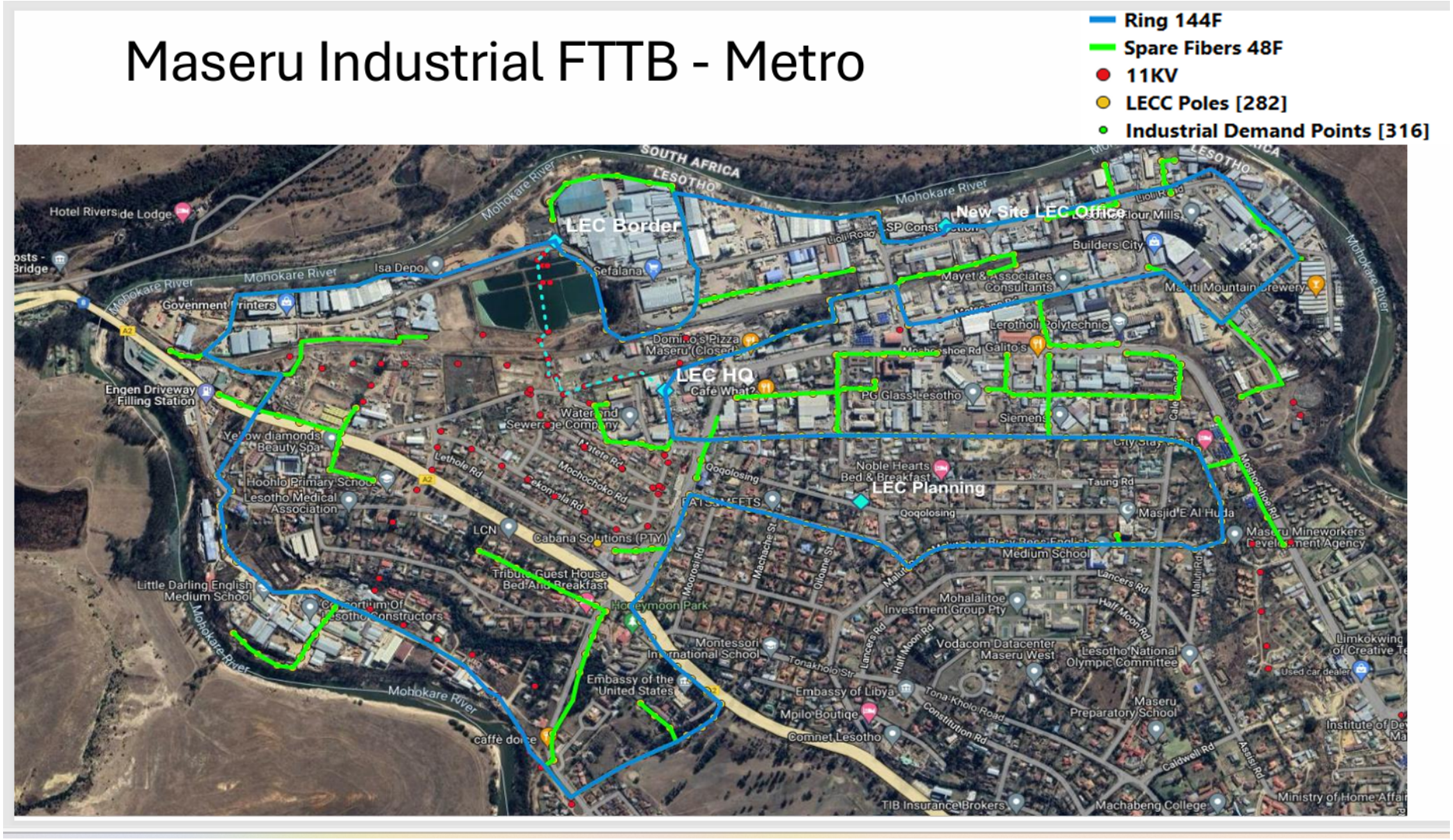

Figure 4 Maseru Industrial FTTB - Metro Ring and Distribution Design Layout

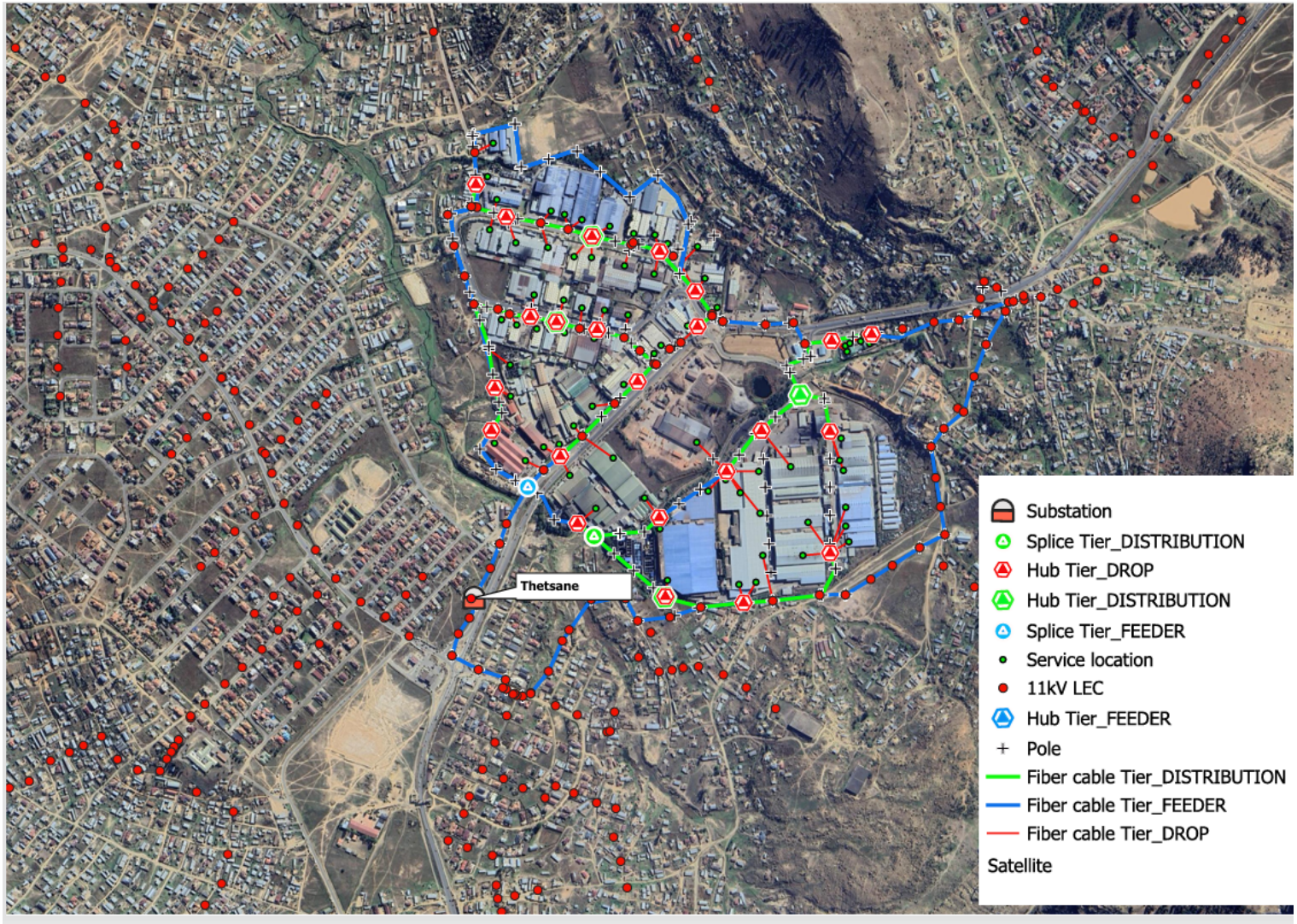

Figure 5 Thetsane Industrial Ring and Distribution Layout

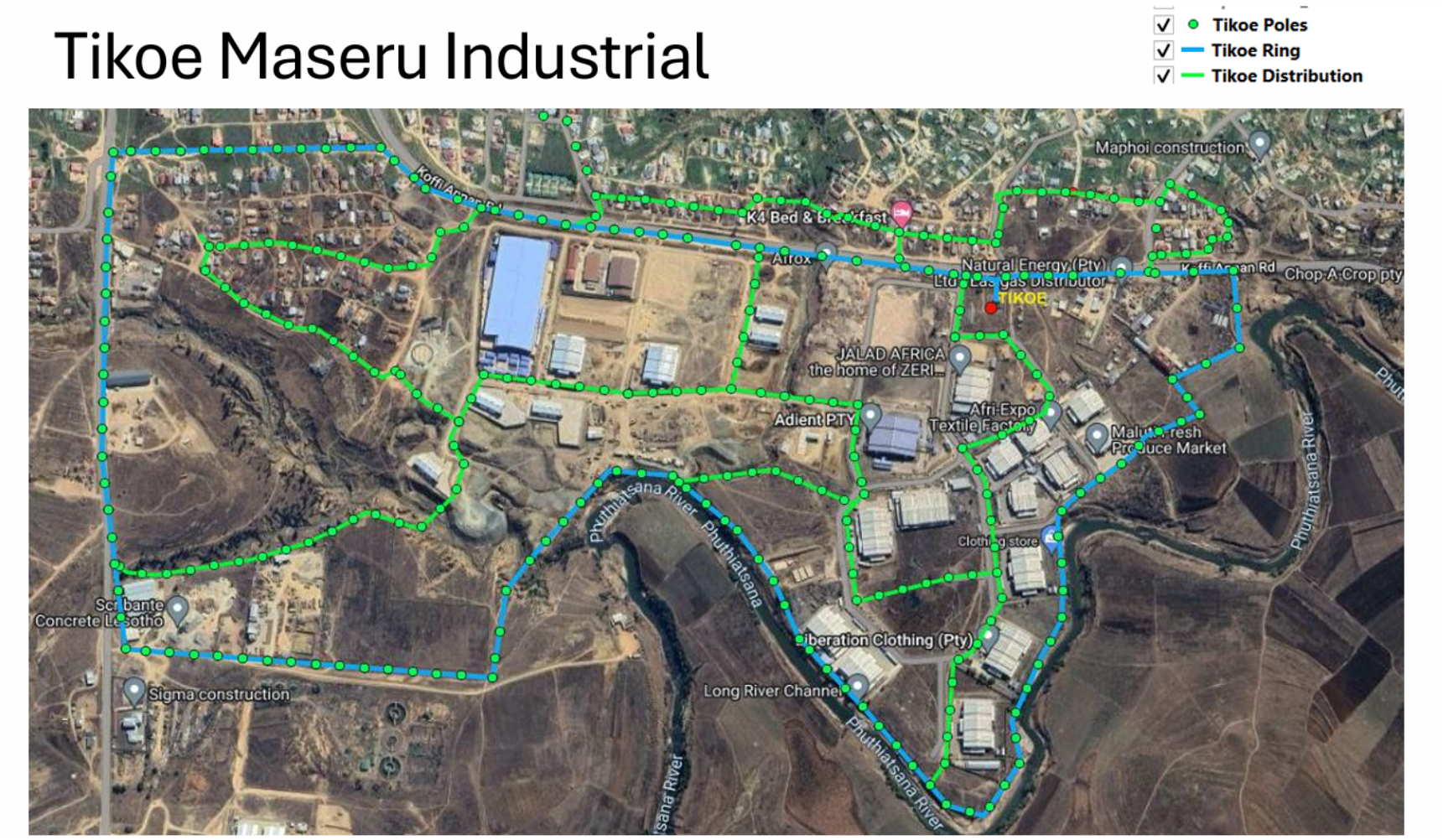

Figure 6 Tikoe Maseru Industrial Ring and Distribution Design Layout

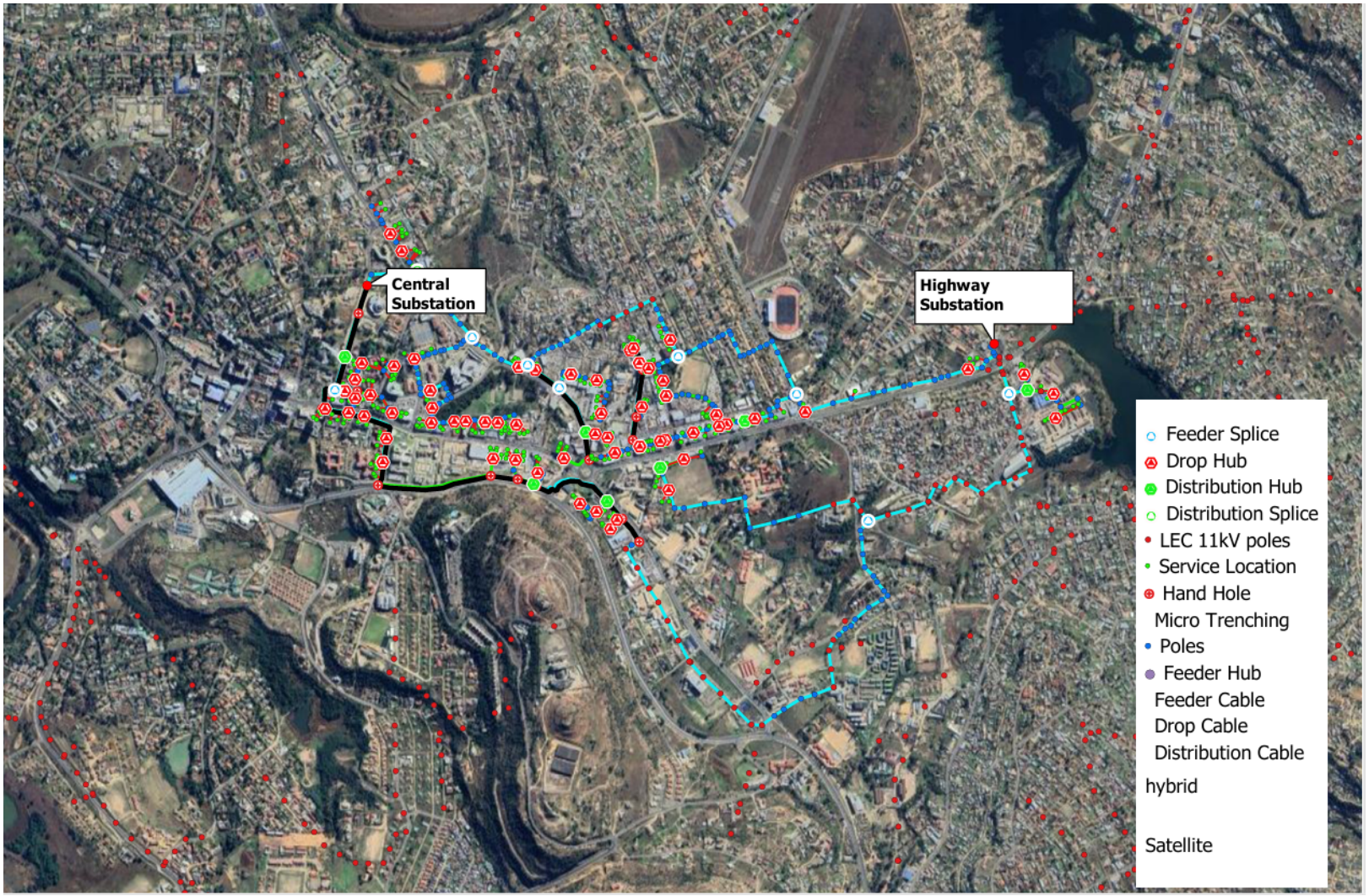

Figure 7 Highway - Central - EIMS Ring and Distribution Design Layout

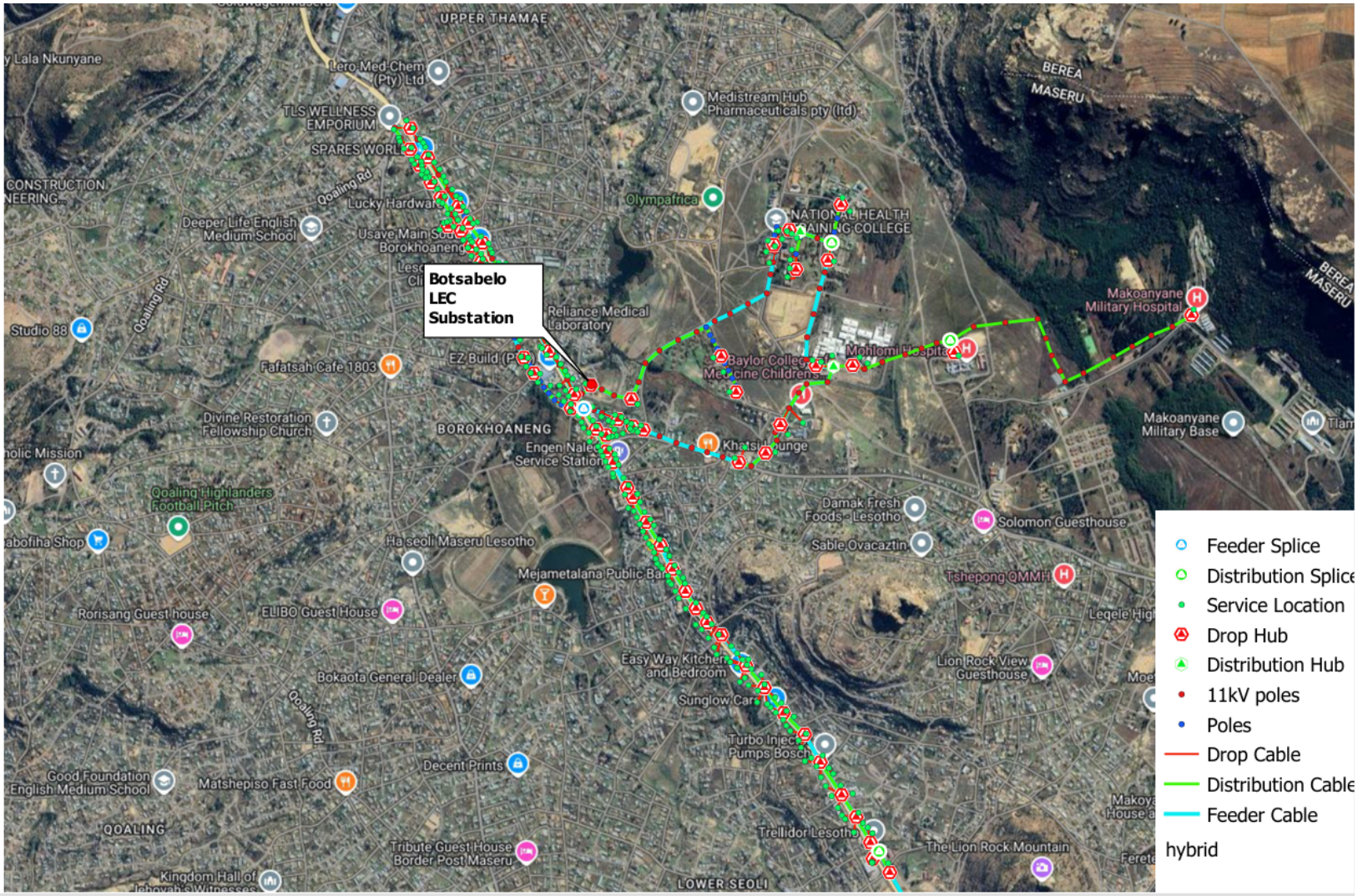

Figure 8 A2 FTTB Lekhaloaneng – Matala Distribution Layout

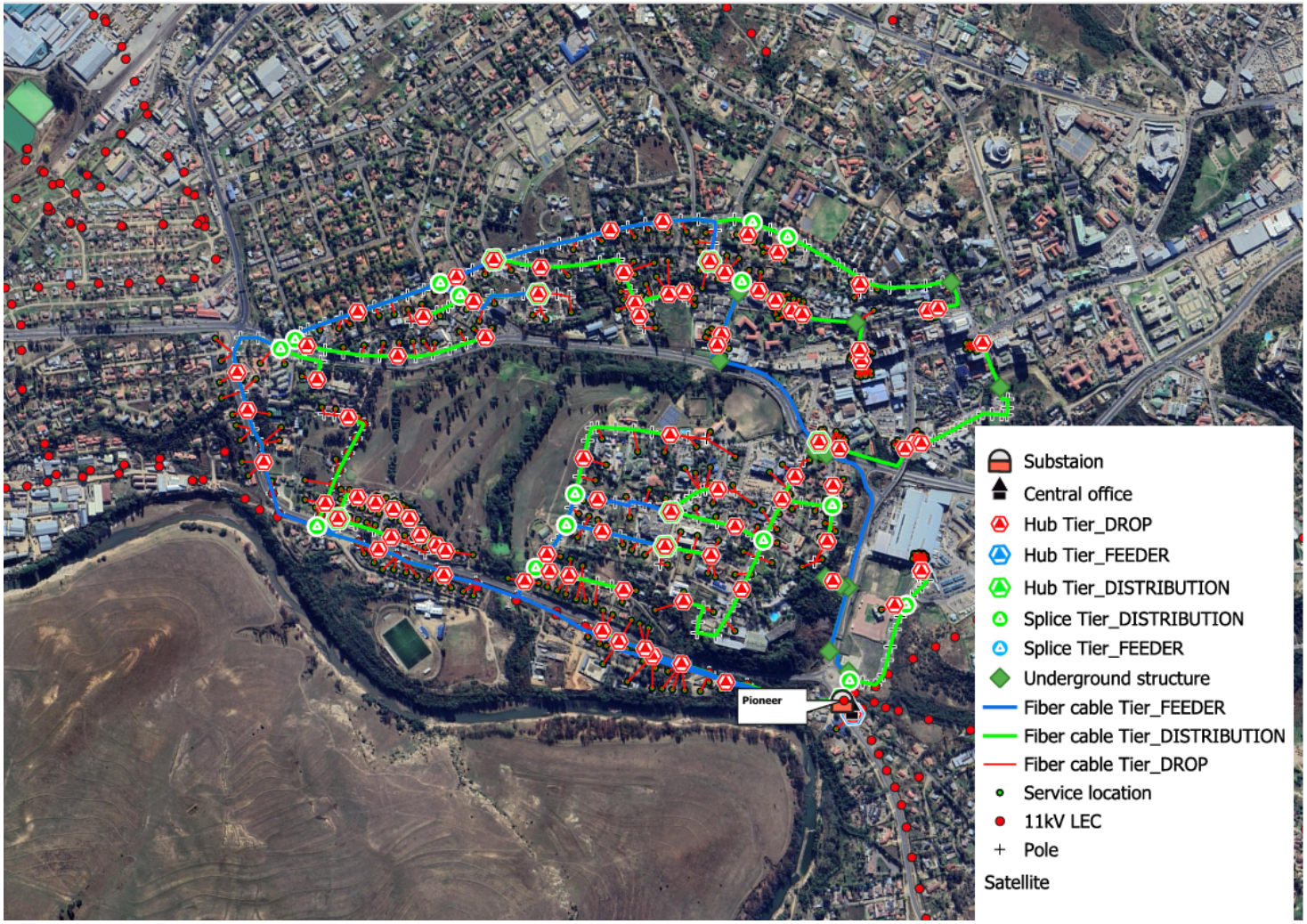

Figure 9 Old Europa - Downtown FTTB Ring and Distribution Layout

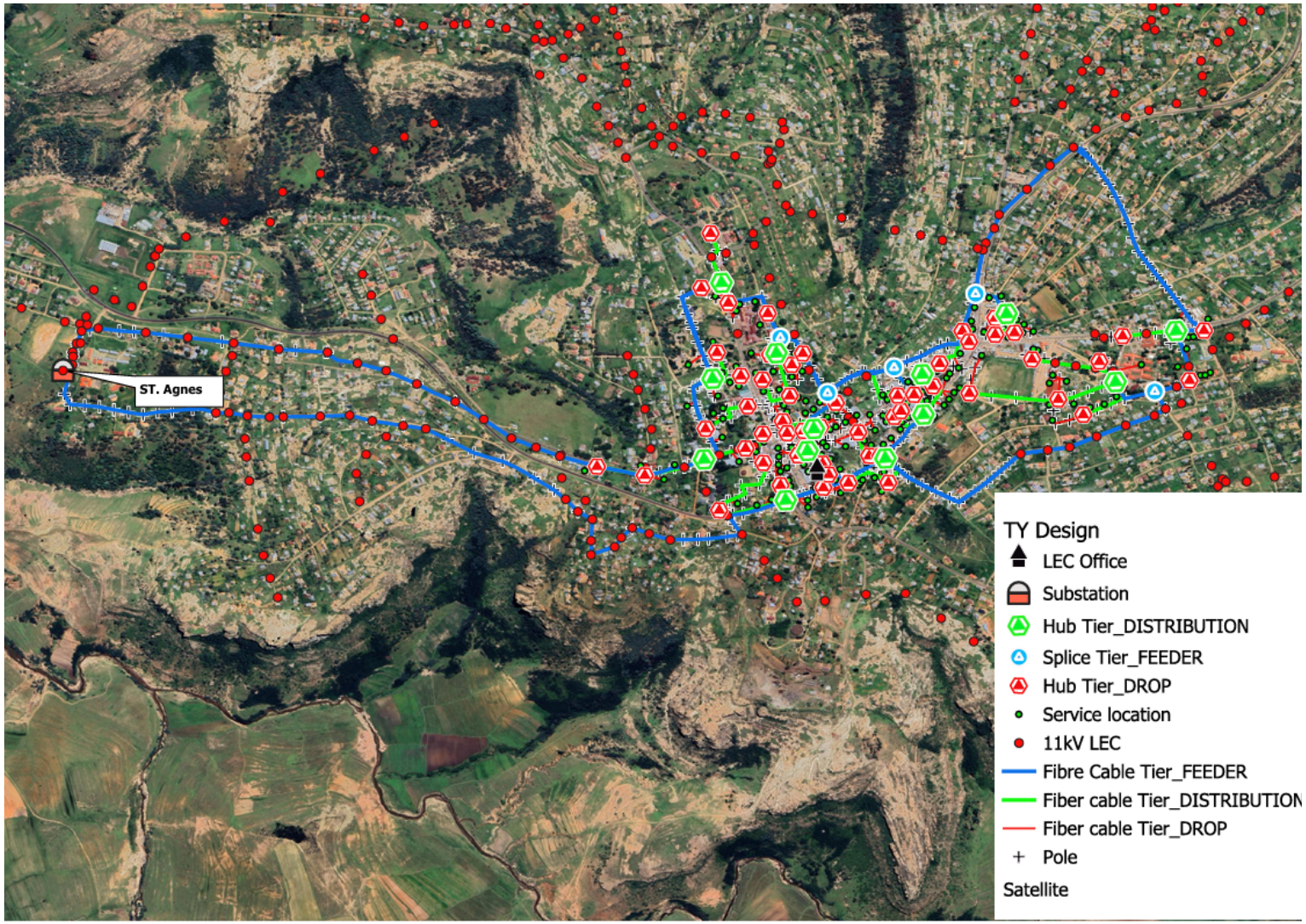

Figure 10 Teyateyaneng Berea TY CBD FTTB Ring Layout

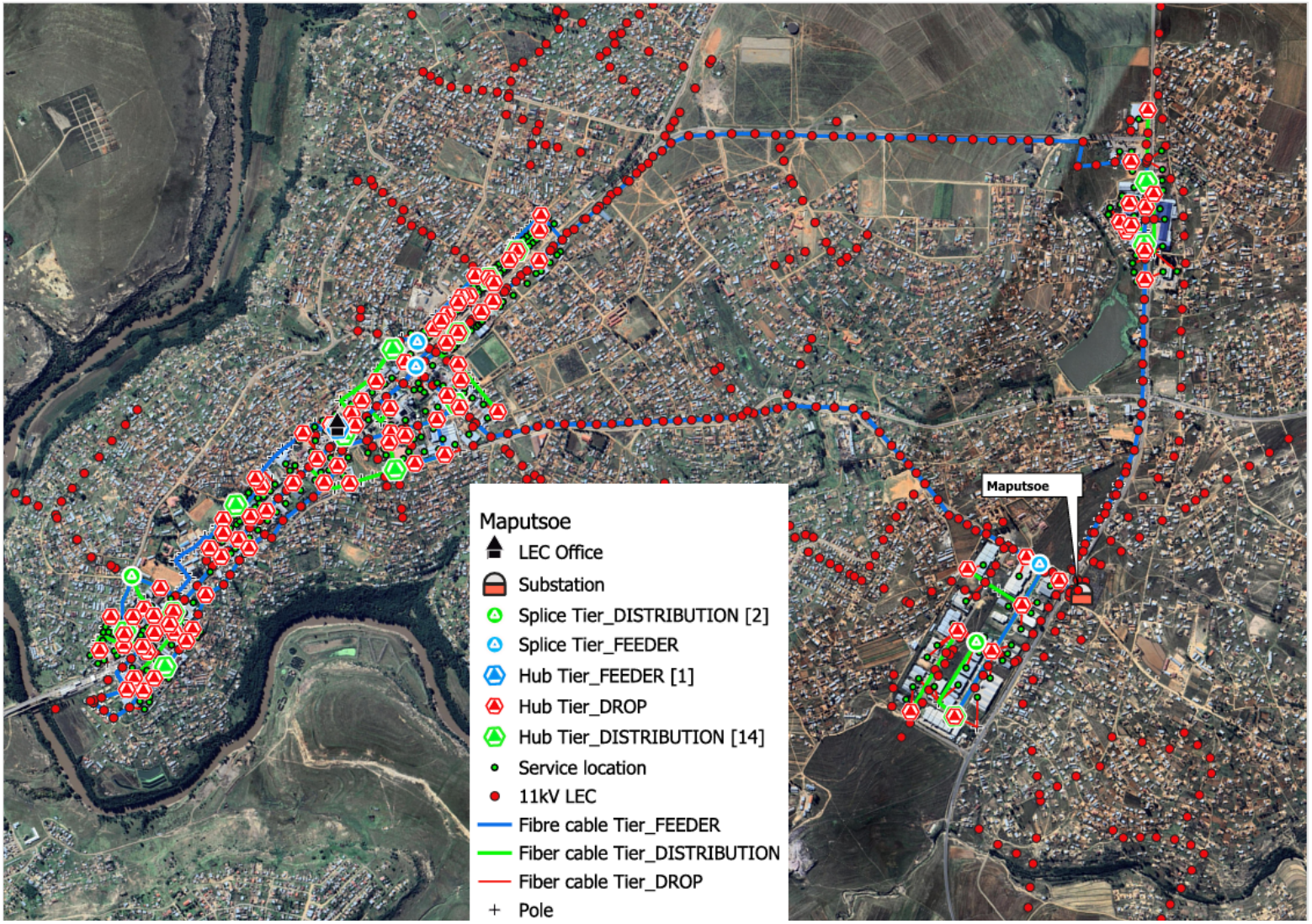

Figure 11Maputsoe CBD Design Layout

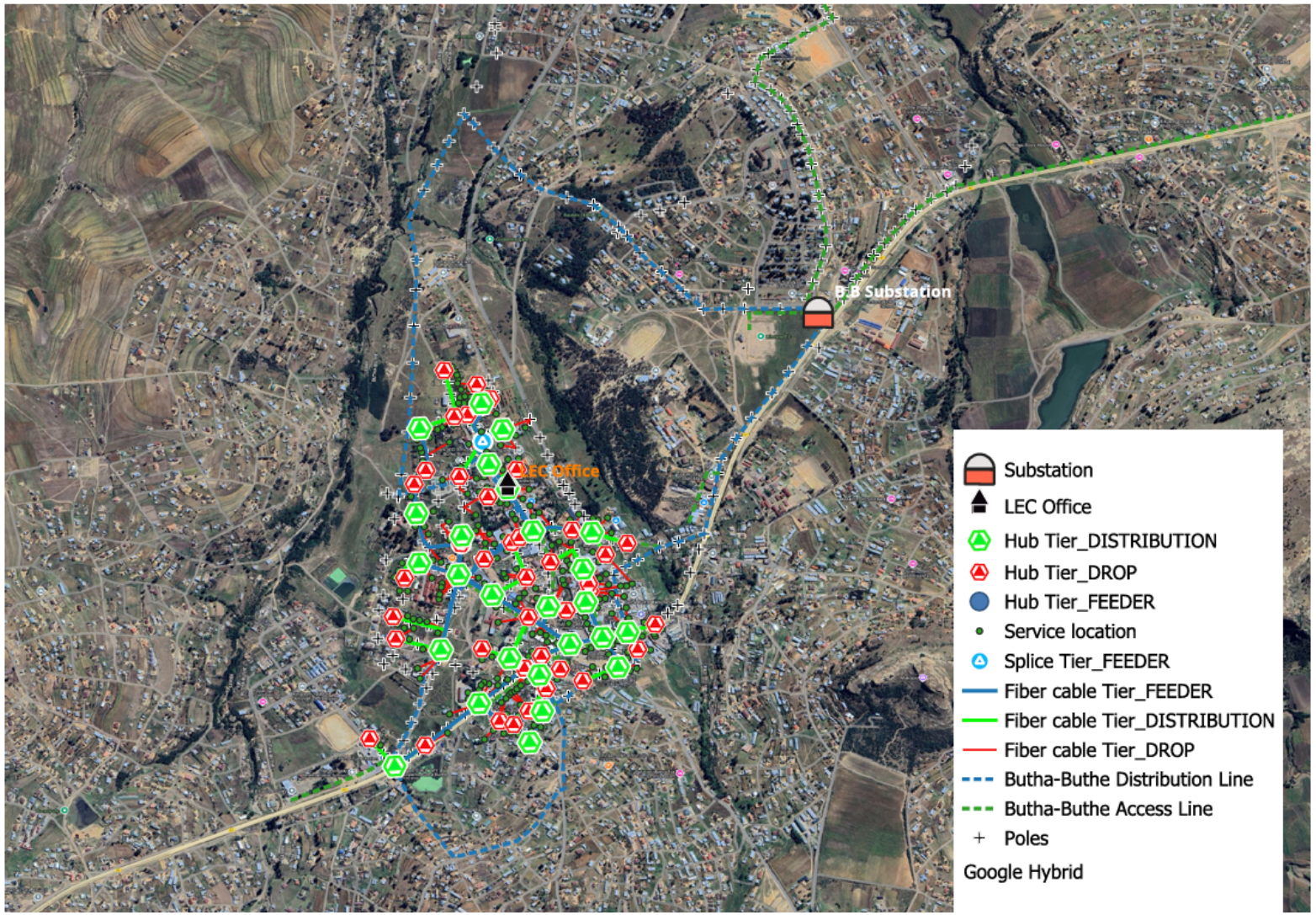

Figure 12 Butha Buthe Metro Ring and Distribution Layout

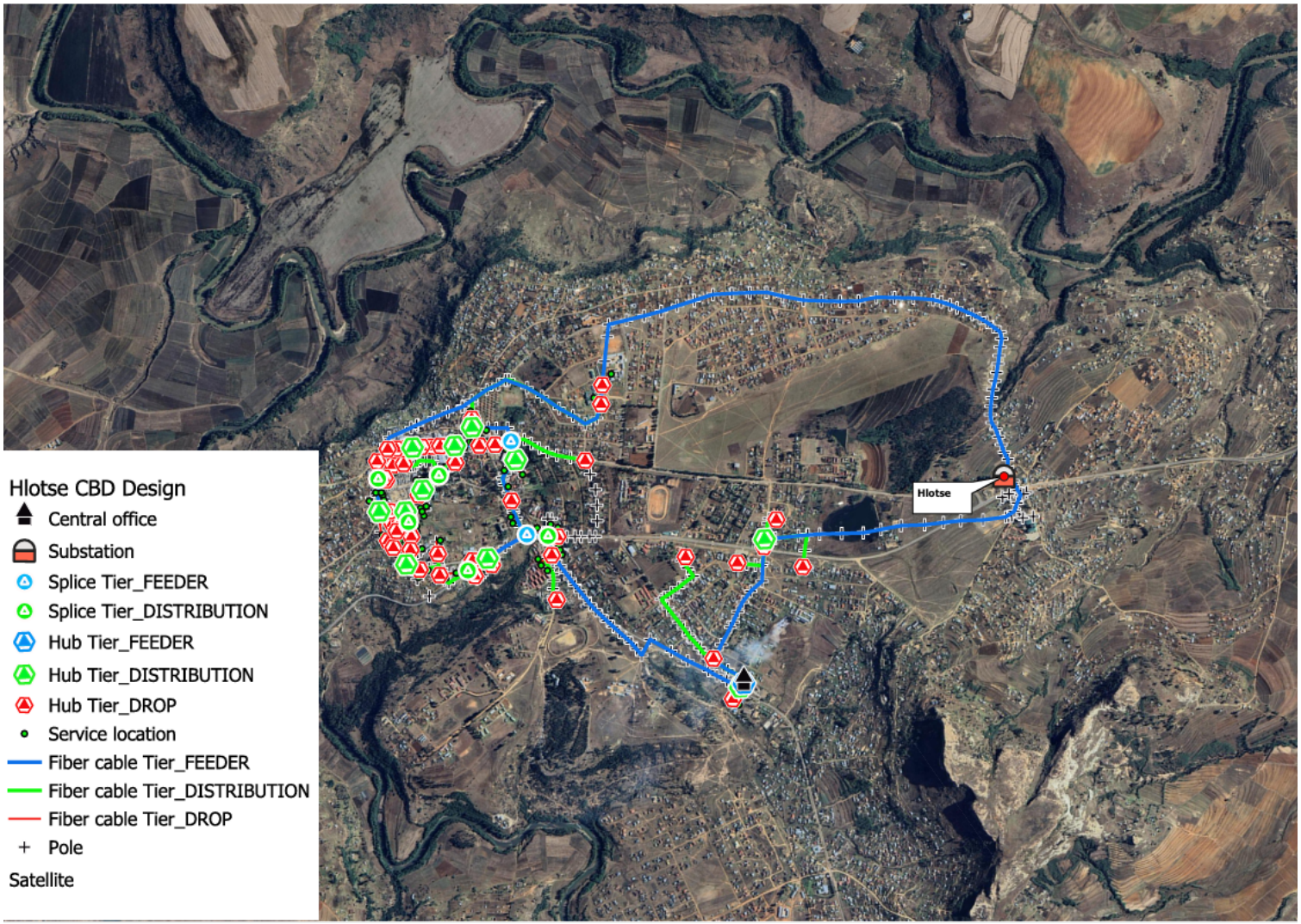

Figure 13 Hlotse Metro Ring and Distribution Layout

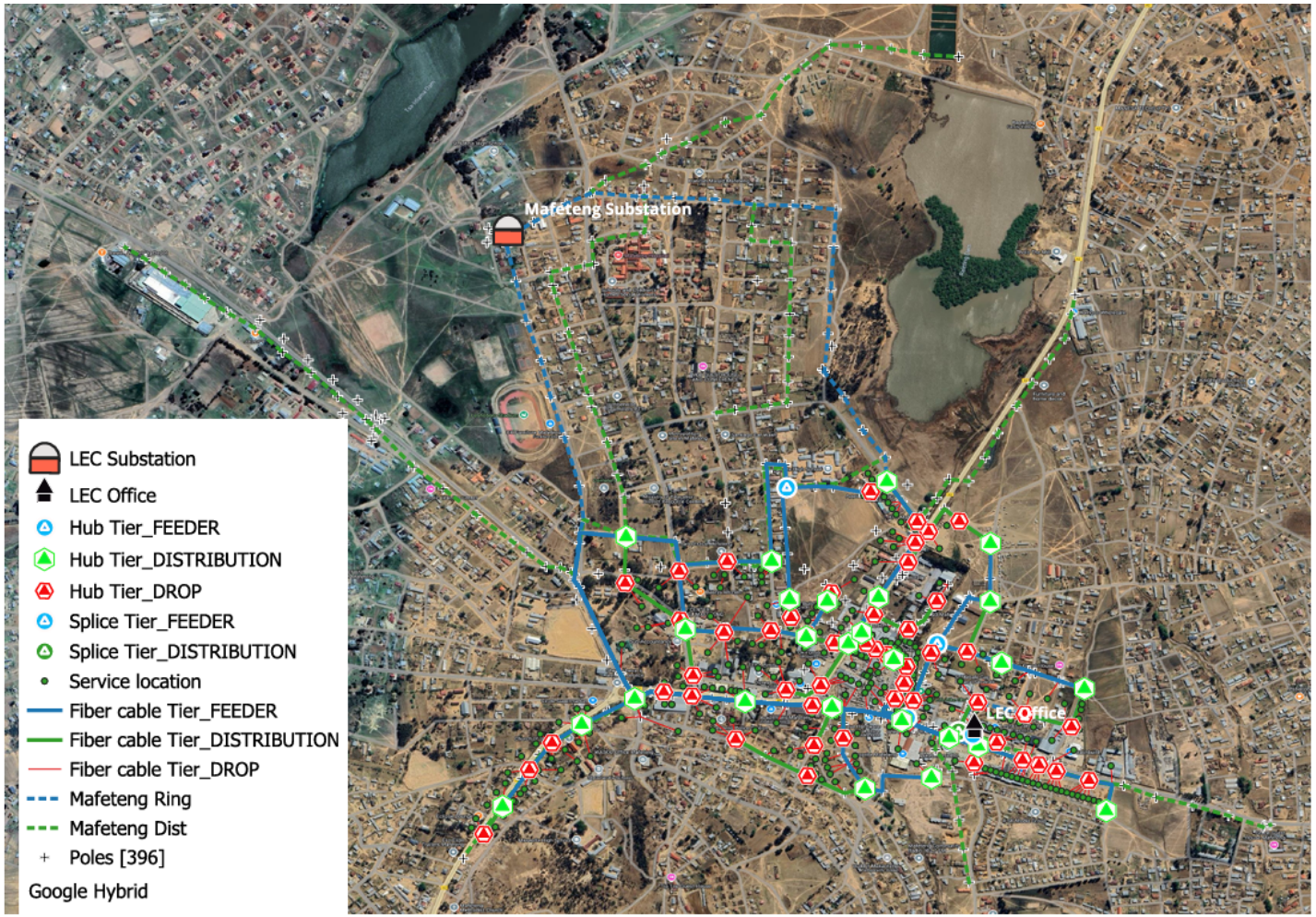

Figure 14 Mafeteng CBD FTTB Ring and Distribution Layout

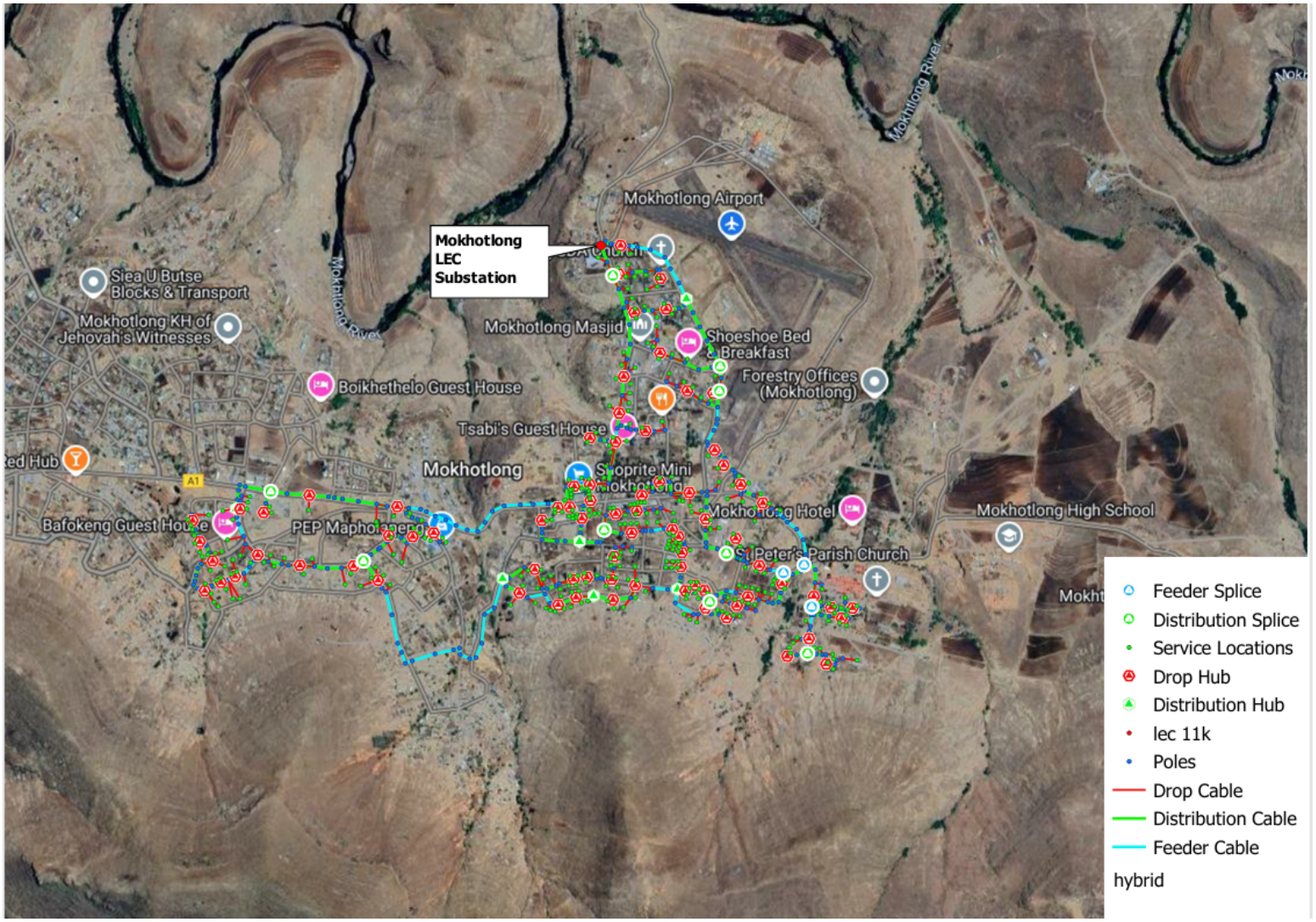

Figure 15 Mokhotlong CBD FTTB Ring and Distribution Layout

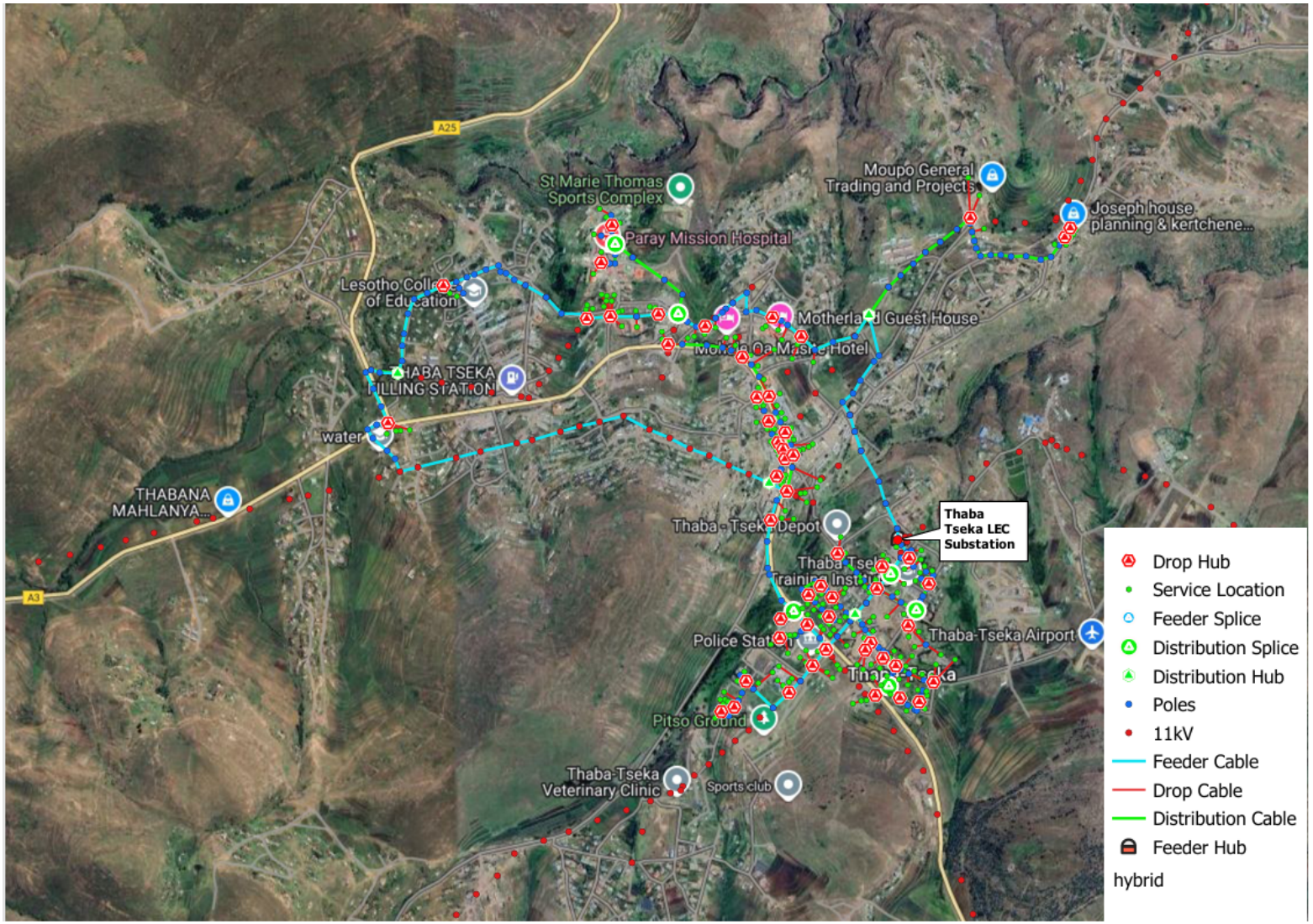

Figure 16 Thaba Tseka CBD FTTB Ring and Distribution Layout

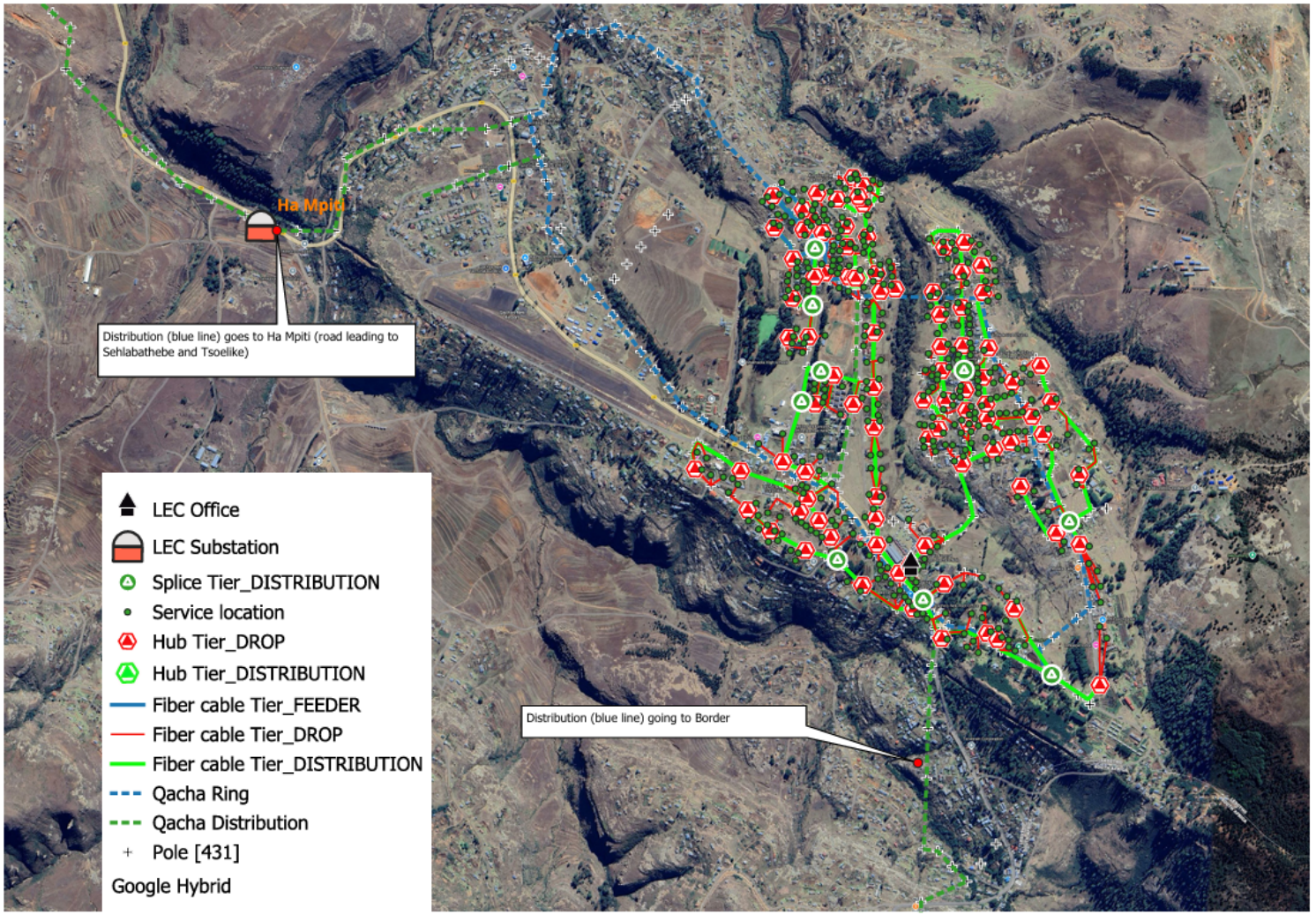

Figure 17 Qhacha's Nek CBD FTTB Ring and Distribution Layout

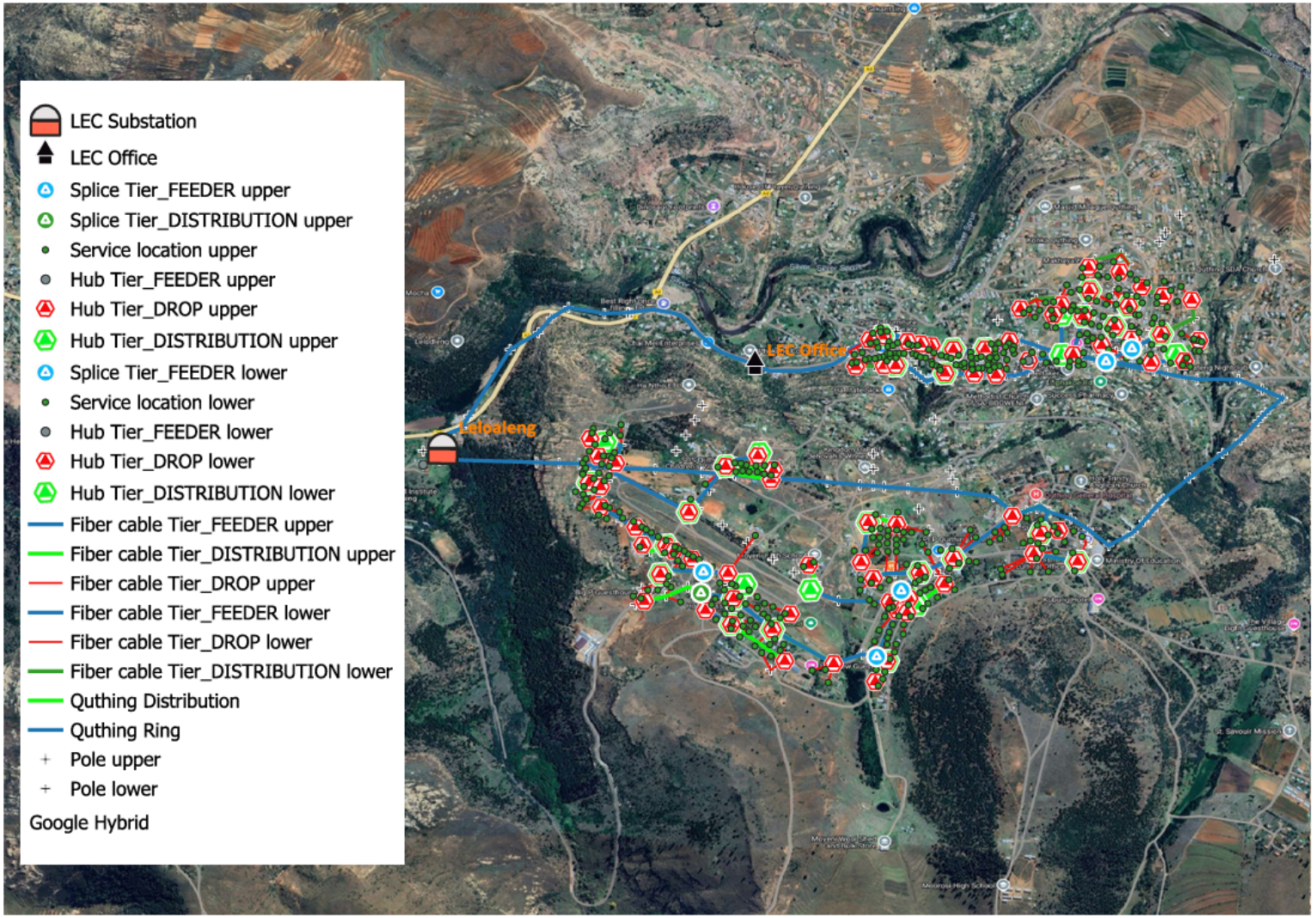

Figure 18 Quthing CBD FTTB Ring and Distribution Layout

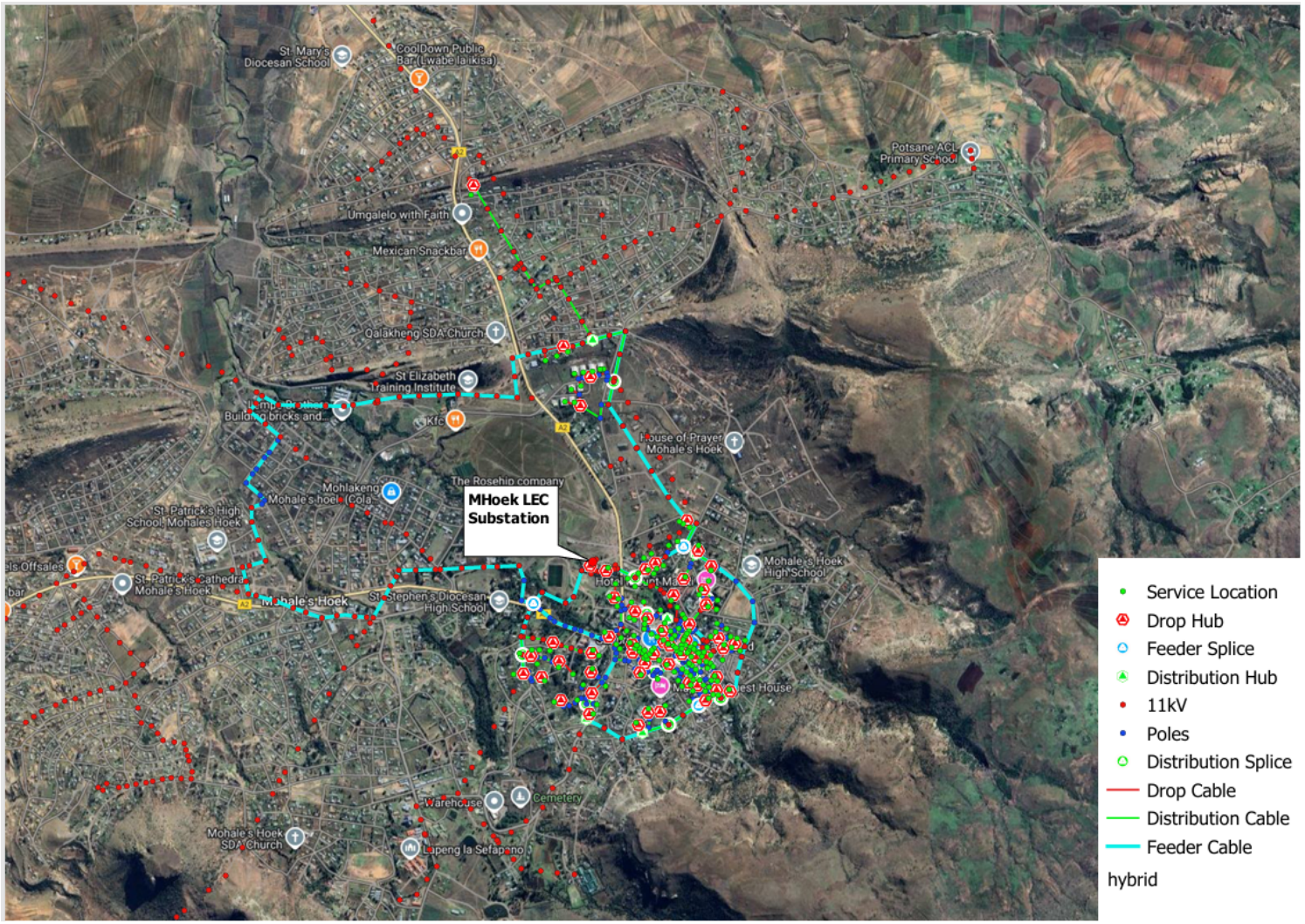

Figure 19 Mohale's Hoek CBD FTTB Ring and Distribution Layout

1.5 Project Description

The LEMOFI project focuses on expanding and modernizing the fibre optic network infrastructure across Lesotho's ten districts. The core objective is to extend high-speed broadband connectivity to underserved areas, fostering economic growth, improving access to e-governance services, and enhancing digital inclusion.

1.5.1 Key Project Components

Network Upgrades: The project includes upgrading existing network infrastructure, increasing backbone capacity and improving network resilience.

Ring Arial Fiber Cable Network: The project involves the deployment of new All Dielectric Self-Supporting fibre (ADSS) utilizing LEC 33kV and 11kV transmission lines and distribution poles. The selection of cable type has been based on terrain, existing infrastructure, and environmental considerations.

The ADSS will be strategically located and primarily aligned along existing infrastructure corridors, such as roads, utility lines, and telecommunications routes, to minimize environmental disturbance and reduce the need for new land clearances. **Figure 20** below illustrates an ADSS.

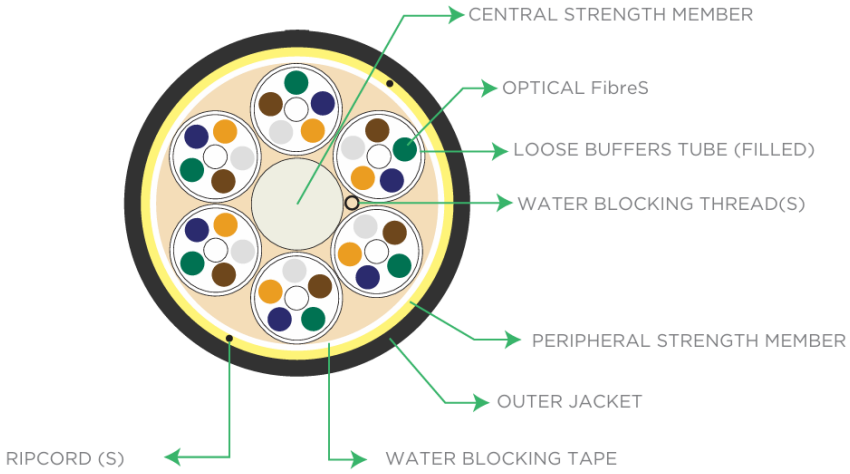

Figure 20: All Dielectric Self-Supporting fibre

Distribution Arial Fiber Cable Network: consist of Backhaul Fibre, feeder fibre, poles, micro-ducts, distribution fibre, 1:2 splitters, 1:4 splitters, 1:8 splitters, drop cable, fibre distribution terminals, fibre access terminals

Points of Presence (POPs): Strategic placement of Points of Presence (POPs) will serve as aggregation and distribution nodes for the fibre network. The project will leverage existing LECC POPs where feasible and establish new POPs to optimize network coverage. Each POP will comprise of outdoor cabinet housing active network equipment, including Optical Transceivers, Routers, Plinth, Switch, Environment Monitoring System, Electrical Distribution, Rectifier and Battery. A PoP is illustrated in **Figure 21** below.

Figure 21 Point of Presence (PoP)

Fiber-to-the-Home (FTTH) Deployment: The project includes a focus on Fiber-to-the-Home (FTTH) connections in urban and peri-urban areas. The pilot FTTH network at Ha Foso covers 2.5 square kilometres and 904 house passes.

Table 1 below shows the scope of the LEMOFI infrastructure per district.

Table 1 Quantity of Project Construction Components for Identified Sites

Activity	Description
1. Construction of ring and distribution networks (Highway – Central – IEMS)	Number of PoPs: **One** Estimated Ring Aerial Cable length: **6.859km** Estimated Ring Trenched Cable length: **3.06km**

	Estimated Distribution Aerial Cable length: **6.192km** Estimated Distribution Trenched Cable length: **1.053km** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **26 Poles** SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **210 Poles** Manhole: **0**
2. Construction of ring and distribution networks (Parliament-MSU Mall)	Number of PoPs: **One** Estimated Ring Aerial Cable length: **9.159km** Estimated Ring Trenched Cable length: **N/A** Estimated Distribution Aerial Cable length: **7.761km** Estimated Distribution Trenched Cable length: **N/A** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **7 Poles** SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **11 Poles** Manhole: **0**
3. Construction of ring and distribution networks (Old Europa - Downtown)	Number of PoPs: **One** Estimated Ring Aerial Cable length: **5.080km** Estimated Ring Trenched Cable length: **1.459km** Estimated Distribution Aerial Cable length: **11.102km** Estimated Distribution Trenched Cable length: **1.705km** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **10 Poles** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **50 Poles** Manhole: **2**
4. Construction of ring and distribution networks (A2-Lekhaloaneng Matala)	Number of PoPs: **One** Estimated Ring Aerial Cable length: **7.258km** Estimated Ring Trenched Cable length: **N/A** Estimated Distribution Aerial Cable length:**12.032km** Estimated Distribution Trenched Cable length: **N/A** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **10 Poles** SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **61 Poles** Manhole: **0**
5. Construction of ring and distribution networks (Thetsane-Tikoe)	Number of PoPs: **Two** Estimated Ring Aerial Cable length: **12.160km** Estimated Ring Trenched Cable length: **N/A** Estimated Distribution Aerial Cable length: **13.112km** Estimated Distribution Trenched Cable length: **N/A** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **51 Poles** SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **87 Poles** Manhole: **0**
6. Construction of ring and distribution networks (Maseru Industrial)	Number of PoPs: **One** Estimated Ring Aerial Cable length: **12.234km** Estimated Ring Trenched Cable length: **N/A** Estimated Distribution Aerial Cable length: **13.389km** Estimated Distribution Trenched Cable length: **N/A** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **8 Poles**

	SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **10 Poles** Manhole: **0**
7. Construction of ring and distribution networks (Teyateyaneng)	Number of PoPs: **Two** Estimated Ring Aerial Cable length: **9.749km** Estimated Ring Trenched Cable length: **N/A** Estimated Distribution Aerial Cable length: **11.138km** Estimated Distribution Trenched Cable length: **N/A** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **10 Poles** SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **89 Poles** Manhole: **0**
8. Construction of ring and distribution networks (Mafeteng)	Number of PoPs: **Two** Estimated Ring Aerial Cable length: **9.056km** Estimated Ring Trenched Cable length: **N/A** Estimated Distribution Aerial Cable length:**31.434km** Estimated Distribution Trenched Cable length: **N/A** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **11 Poles** SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **10 Poles** Manhole: **0**
9. Construction of ring and distribution networks (Maputsoe)	Number of PoPs: **One** Estimated Ring Aerial Cable length: **12.144km** Estimated Ring Trenched Cable length: **N/A** Estimated Distribution Aerial Cable length: **17.977km** Estimated Distribution Trenched Cable length: **N/A** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **0 Poles** SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **0 Poles** Manhole: **0**
10. Construction of ring and distribution networks (Hlotse)	Number of PoPs: **One** Estimated Ring Aerial Cable length: **11.682km** Estimated Ring Trenched Cable length: **N/A** Estimated Distribution Aerial Cable length: **10.336km** Estimated Distribution Trenched Cable length: **N/A** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **10 Poles** SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **46 Poles** Manhole: **0**
11. Construction of ring and distribution networks (Butha Buthe)	Number of PoPs: **One** Estimated Ring Aerial Cable length:**7.480km** Estimated Ring Trenched Cable length: **N/A** Estimated Distribution Aerial Cable length: **16.463km** Estimated Distribution Trenched Cable length: **N/A** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **46 Poles** SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **115 Poles** Manhole: **0**

12. Construction of ring and distribution networks (Mohale's Hoek)	Number of PoPs: **One** Estimated Ring Aerial Cable length: **7.699km** Estimated Ring Trenched Cable length: **N/A** Estimated Distribution Aerial Cable length: **12.025km** Estimated Distribution Trenched Cable length: **N/A** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **0 Poles** SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **4 Poles** Manhole: **0**
13. Construction of ring and distribution networks (Lower & Upper Moyeni)	Number of PoPs: **One** Estimated Ring Aerial Cable length: **7.449km** Estimated Ring Trenched Cable length: **N/A** Estimated Distribution Aerial Cable length: **6.203km** Estimated Distribution Trenched Cable length: **N/A** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **0 Poles** SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **4 Poles** Manhole: **0**
14. Construction of ring and distribution networks (Mokhotlong)	Number of PoPs: **One** Estimated Ring Aerial Cable length: **7.225km** Estimated Ring Trenched Cable length: **N/A** Estimated Distribution Aerial Cable length: **9.70km** Estimated Distribution Trenched Cable length: **N/A** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **20 Poles** SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **284 Poles** Manhole: **0**
15. Construction of ring and distribution networks (Thaba Tseka)	Number of PoPs: **One** Estimated Ring Aerial Cable length: **6.758km** Estimated Ring Trenched Cable length: **N/A** Estimated Distribution Aerial Cable length: **7.983km** Estimated Distribution Trenched Cable length: **N/A** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **10 Poles** SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **47 Poles** Manhole: **0**
16. Construction of ring and distribution networks (Qacha's Nek)	Number of PoPs: **One** Estimated ring aerial cable length: **6.842km** Estimated ring trenched cable length: **N/A** Estimated Distribution Aerial Cable length: **12.512km** Estimated Distribution Trenched Cable length: **N/A** Use of LEC's 11kV lines: **Yes** SABS Poles of Length 9 meters (Treated – creosole and 140mm – 160 mm or greater): **0 Poles** SABS Poles of Length 7 meters (Treated – creosole and 140mm – 160 mm or greater): **8 Poles** Manhole: **0**

1.5.2 Technical Specifications

Fiber Type: Single-mode optical fibre (ITU-T G.652 or equivalent).

Bandwidth Capacity: The network will support high bandwidth capacity to accommodate current and future demand for broadband services, with backbone links operating at 10 Gbps to 40 Gbps.

Technology Standards: The project will adhere to relevant international standards for fibre optic network design, installation, and operation.

1.6 Scope and Objectives of the ESMP

This section outlines the **scope and objectives** of the **Environmental and Social Management and Monitoring Plan (ESMP)** for the Lesotho Metropolitan Fiber Distribution Network Project. The ESMP serves as a practical tool to ensure that the environmental and social mitigation measures identified in the **Environmental and Social Impact Assessment (ESIA)** are effectively implemented, monitored, and adapted as needed throughout the Project lifecycle.

1.6.1 Scope of the ESMP

The ESMP applies to all phases of the Project—from planning and preparation, through construction, to operation and maintenance—and across all ten districts where the fiber network will be deployed. It provides a comprehensive management framework that supports environmentally and socially responsible project implementation by **Environmental Act (2008)**, the **African Development Bank Integrated Safeguards System (ISS, 2023)**, **IFC Performance Standards (2012)**, and relevant international guidelines such as the **World Bank Group Environmental, Health, and Safety (EHS) General Guidelines (2007)**.

The scope of the ESMP is to:

- **Translate the mitigation measures** proposed in the ESIA into actionable management and monitoring plans with clearly defined roles and responsibilities, schedules, and estimated costs.
- **Enable Project Supervision Consultant (PSC)** and **Contractors** to identify and allocate the necessary human and financial resources to support environmental and social performance.

- **Guide LECC (Lesotho Electricity and Communications Company)** in establishing systems to review, update, and improve environmental and social management processes in response to unforeseen events, impacts, or changes in project design and implementation.
- **Ensure ongoing compliance** with applicable national environmental and social legislation, as well as the AfDB ISS, IFC Performance Standards, and WBG EHS Guidelines.
- **Establish a monitoring and reporting framework** to track environmental and social performance against clearly defined key performance indicators (KPIs).
- Promote the **integration of environmental and social considerations** into overall project decision-making, risk management, and stakeholder engagement.

1.6.2 Objectives of the ESMP

The Environment and Social Management Plan (ESMP) is designed to describe the environmental and social management measures to be implemented by the Contractor during the construction of the proposed road update and incorporates the findings of the Environment and Social Impact Assessment (ESIA) that was undertaken in the project area.

The main objective is to provide actions to manage negative impacts and enhance beneficial impacts of the project through design, construction and operational phases of the project. Each management action provided is designed to be practical, measurable and auditable. Therefore, this ESMP aims to:

- Provide an environmental and social management planning document for incorporation into the construction tender and contract documents
- Define and outline the functions, roles and responsibilities of persons accountable for effective environmental and social management
- Outline mitigation measures of environmental and social specifications to minimise the extent of impacts associated with the implementation of the project.
- Identify the requirements for detailed Method Statements (Construction Phase) for certain aspects.

- Prevent long-term or/or permanent environmental degradation.
- Define requirements and procedures for environmental and social monitoring.
- Outline procedures for environmental management and control in the event of pollution or significant incidents.
- Provides guidance for the operational management of the optic fibre.

1.7 Environmental and Social Principles and Best Practice Guideline

The following environmental and social principles and best practices underpin this ESMP:

- The environment is composed of both social and bio-physical components.
- Construction is a disruptive activity, and adequate management must be in place for the social and bio-physical components of the environment.
- Minimisation of areas disturbed by construction activities, i.e. the “footprint” of the construction areas, should be as small as possible to minimise the construction-related environmental and social impacts of the road upgrade project and reduce rehabilitation requirements and costs.
- Every effort should be made to minimise, reclaim and/or recycle waste materials.
- All relevant international, national as well as local standards and legislation, as applicable, should be adhered to.

1.8 Intended users of the ESMP

The ESMP is a public operational document intended to guide various stakeholders in the implementation, monitoring, and supervision of the Project’s environmental and social commitments. The intended users include:

- **Administrative Authorities**: Particularly the Department of Environment, responsible for regulatory oversight and ESIA/ESMP approval.
- **Lenders**: The ESMP provides evidence of LECC's commitment to fulfilling environmental and social obligations under financing agreements.
- **Local Communities and Organizations**: The ESMP outlines how community concerns are addressed, including mitigation and compensation measures, and serves as a reference during public consultations.

- **LECC Management and HSES Unit**: The ESMP acts as an internal roadmap for environmental and social performance during design, construction, and operations.
- **Contractor**: The ESMP is incorporated in the tender and contract documentation. The selected Contractor will be required to develop a Construction ESMP (C-ESMP) aligned with the requirements of this document.

1.9 Terms of Reference

The Terms of Reference call for the Consultant to carry out the development of Environmental and Social Impact Assessment (ESIA) Report and Environmental and Social Management Plan (ESMP) to cover the follow aspects:

Impact Identification - A comprehensive assessment of potential environmental and social impacts, including effects on communities, ecosystems, and cultural heritage, as well as potential benefits of expanding fibre distribution networks.

Stakeholder Engagement - A summary of feedback from stakeholders, including government entities, local communities, businesses, and civil society organizations, highlighting key social and environmental concerns.

Mitigation Strategies - Proposed measures to address identified impacts and ensure regulatory compliance, including environmental protections, social programs, and community engagement initiatives.

1.10 Details of the Proponent

Government of Lesotho

Ministry of Energy

Lesotho Electricity Company - Communication

Tel: +266 22312248

New Europa, House 286

2.0 POLICY, LEGISLATIVE AND REGULATORY FRAMEWORK

This chapter provides a summary of the legislation and standards applicable to the LEMOFI project. In addition to the Constitution of Lesotho and Environment Act 2008, there are other several relevant national and international policies and regulations that provide safeguards for the development, construction and operation of the project. A summary of those that apply to the project are outlined in Table 2, and further detail on the key legislation and standards is presented thereafter. A full overview of Project's legislative framework is presented in chapter 2 of the ESIA.

Table 2 Project Legislative Framework

National Legislation, Policies and Strategies	International Treaties and Conventions	International Safeguards Standards
• Environmental Act No. 10 of 2008 • Mines And Minerals Act No.4 of 2015 • Water Act No 15 of 2008 • Local Government No. 5 of 2004 • Local Administration Act No. 13 of 1969 • National Heritage Resources Act No.2 of 2012 • Trafficking Act No. 8 of 1981 • Roads Directorate Act No. 16 of 2010 • Legal Capacity of Married Persons Act of 2006 • Sexual Offence Act No. 3 of 2003 • Anti – Trafficking in persons Act No 1 of 2011 • Workmen's Compensation Act No. 13 of 1977 • Labour Act 2024 • Occupational Safety and Health Act 2024 • Public Health Order 1970 • Weed Eradication Act No. 18 of 1969 • Town and Country Planning Act No. 11 of 1980 • Environmental Policy 1998	• Basel Convention on the control of Transboundary Movements of hazardous Wastes and their disposal (1989) • Convection on Biological Diversity (1992) • Revised Convention on Conservation of Nature and Natural Resources, 2004 • International Labour Organization Convention 1998 • Convention on Rights of the child 1990 • Protocol to Suppression and Punish Trafficking in Persons, Especially Women and Children	• African Development Bank Operational Safeguards 2023 • International Finance Corporation (IFC) Performance Standards 2012 • FIDIC HIV/ AIDS Guidelines 2021 • Environmental, Health and Safety Guidelines (EHS Guidelines) 2007

• Gender Development Policy 2023 • Lesotho Water and Sanitation Policy 2007 • Lesotho Communications Policy 2008 • Lesotho Environmental Impact Assessment Guidelines 2010 • National HIV and AIDS Strategic Plan • Lesotho Communications Policy 2008		

Below are two major national legislations that vital in environmental and social management in the country.

2.1 The Constitution of Lesotho, 1993

The constitution is the supreme law of the country. It also provides an overarching environmental legislative framework for environmental management. Section 36 of the Constitution particularly addresses the need for environmental protection. It states that" Lesotho *shall adopt policies designed to protect and enhance the natural and cultural environment of Lesotho for the benefit of both present and future generations and shall endeavour to assure to all citizens a sound and safe environment adequate for their health and well-being*".

Furthermore, Section 17 stipulates that no property (movable or immovable) shall be compulsorily acquired without paying any compensation to the entitled individual.

The Constitution also entitles everyone to the protection of health through the adoption of policies aimed at ensuring the highest attainable standard of physical and mental health for its citizens, including policies designed to *inter alia*: "*provide for the prevention, treatment and control of epidemic, endemic, occupational and other diseases"* (Article 27(c)). This Article implicitly includes HIV and AIDS as a disease.

Chapter 2 of the Constitution is devoted to the protection of fundamental human rights and freedoms, two of which are freedom from discrimination and the right to equality

before the law. Section 18 provides that no law shall make any provision that is discriminatory either of itself or in its effect (Hodges, 2007).

Relevance to the Project: The project will need to adhere to the Environmental and Social Management Plan (ESMP) requirements and Environmental Impact Assessment (EIA) licence conditions (once issued) to ensure that social, health and environmental management considerations are taken into account throughout the project cycle without compromising both present and future generations.

2.2 Environmental Act No. 10 of 2008

The Environmental Act is the principal underlying framework for environmental legislation for matters concerning the environment in Lesotho. It makes provision for protection and management of the environment and conservation and sustainable utilisation of the country's natural resources.

Section 4 stipulates that "*Every person living in Lesotho has a duty to safeguard and enhance the environment including the duty to inform the Director of all activities and phenomena that may affect the environment significantly.*"

Section 25 further stipulates that no activity listed in the First Schedule may be undertaken without an Environmental Impact Assessment (EIA) licence issued by the Director. The categories of project and/or activities for which an EIA is required are outlined in **Table 3**.

Table 3 Triggered Activities in terms of Environmental Act of 2008

Item	Description of the Activity	Relevance to the Project
15	***Communication facilities, including telephone, television, and radio transmission masts***	Even though LEMOFI Project results in communication facilities, it utilises already existing electricity supply infrastructure hence Its footprint is very minimal and does not require a comprehensive ESIA with specialist studies.
6	***Mining, mineral extraction including quarrying and opencast extraction of –*** *(d) aggregates, sand and gravel.*	Aggregate will be required for all concrete works. It is not known whether this material will be supplied from commercial suppliers or existing or new borrow pits/quarries and rivers.

Item	Description of the Activity	Relevance to the Project
11	***Waste handling, storage, transport, treatment and disposal including –*** *(i) transportation and storage of hazardous substances or waste*	Domestic and hazardous waste generated from construction activities will be temporarily stored on site until it is transported by a service provider to a registered disposal facility.

Environmental Audits

The Environment Act 2008 also mandates that all projects for which an Environmental Impact Assessment (EIA) has been approved may be subject to periodic environmental audits.

- The purpose of the audit is to:
  - Ensure compliance with the conditions of the approved EIA and environmental license.
  - Evaluate the effectiveness of mitigation measures and the implementation of the Environmental and Social Management Plan (ESMP).

Relevance to the Project: As per the requirements of the Act, the proposed development requires an EIA licence to commence with construction. The listed activities (in Part A of the First Schedule of the Act) that will be triggered by the proposed project are listed in **Table 3.** The Contractor shall adhere to the conditions of the issued EIA Licence during implementation of this project.

2.3 Potential Permits Required

The permits that may be required for construction and operation of this project are summarised in **Table 4.**

Table 4 Required Environmental Permits and/or Licenses.

Act/ Regulations	Permit/ Licence	Implementing agent	Relevance to the project	Responsible entity
Section 47 of the Environment Act	Noise permit	Department of Environment	A noise permit may be required if the construction noise levels (i.e., blasting activities) are likely to be more than the noise emission standards.	Contractor

Act/ Regulations	Permit/ Licence	Implementing agent	Relevance to the project	Responsible entity
Section 76 of the Environment Act	Waste licence	Department of Environment	The Contractor may require a licence to store, handle and transport hazardous waste.	Contractor
Water Act, No. 15 of 2008	Water Use Permits	Department of Water Affairs	The activities that are applicable to this project which require a Water Use Permit include: taking of water from a watercourse storing water	Contractor
Sections 65–67 of the Environment Act	Consent	Department of Environment	Will be relevant to the removal of endangered or protected plants if any are found on sites to be cleared for construction.	Contractor
National Heritage Resources Act, 2011	Consent	Department of Culture	Permission/consent is required for any destruction or damage to any historical monuments.	Contractor
Roads Act No. 24 of 1969	Permit Wayleave	Ministry of Public Works and Transport	A permit/wayleave will be required where the operational servitude of the fibre will be constructed along the road servitude as well as construction servitude overlapping with road servitude.	Contractor

3.0 INSTITUTIONAL ARRAGEMETN FOR ESMP IMPLEMENTATION

In order to ensure that the safeguards are implemented at project level, the Lesotho Electricity Company communications (LECC) which implements construction on behalf of GoL will make contractual agreements with construction companies that are to implement the LEMOFI activities. In the contracts, the contractors will commit to execute construction in an environmentally sustainable manner and sensitive to social issues as per the requirements of the ESMP as outlined in the tender documents. The contractors will engage Environmental Control Officer (ECO) and Community Relations Officer (CRO) who will be responsible for the implementation of the ESMP requirements on daily basis during construction period.

In addition, LECC should engage a Project Supervision Consultant (PSC), who will supervise construction in all the 10 project districts and shall be responsible for oversight and project progress reporting on E&S aspects of the project under direct supervision of the LECC Project Manager (PM). The key personnel of the PSC will be Resident Engineer (RE), and Environment and Social Safeguards Manager (ESSM).

PSC shall also engage Environment and Social Safeguards Officers (ESSOs) for each project who will be on-site on the daily basis to monitor project compliance with the ESMP requirements. These officers are to facilitate a good relationship between the project and host communities through implementation of Grievance Redress Mechanism (GRM) for timeous and effective dispute resolution.

To enhance monitoring, three monitoring instruments have been developed namely Weekly Environmental and Social Monitoring Sheet, Monthly ESMP Compliance Monitoring and Evaluation Checklist as well as Monthly Reporting Template. On weekly basis, the Contractor will undertake inspection of environmental and social issues on-site to measure their performance against given key performance indicators (KPI). This exercise will be done in the presence of the ESSO for them to verify, and sign-off the monitoring sheets. The ESSO will in turn perform monthly monitoring in the absence of ESSS using the monthly monitoring checklist. Finally, using the collected data, the ESSO will generate information to draw up monthly report to the ESSS following the Monthly Reporting Template.

PSC will ensure that the contractors engage a service provider for implementation of social related activities such as Gender Based Violence (GBV), Sexual Exploitation and Abuse/Harassment (SEA/H), and HIV/AIDS sensitization and awareness raising activities for the construction personnel.

LECC will have a technician on-site permanently on site and will engage an Environment and Social Safeguards Specialist (ESSS). These LECC officers will work hand-in-hand with the Project Supervision Consultant (PSC) to take care of Designs, Environment, social, Health and Safety requirements during project implementation. The ESSS will also be responsible for coordinating PSC for implementation of social and environmental safeguards requirements of the project. Environment and Social Safeguards Specialist (ESSS) will also be responsible for developing and overseeing environmental and social policies and procedures, as well as reviewing and appraising the LEMOFI project for compliance with environmental and social requirements. The ESSS is expected to visit each project sites once a month as part of monitoring.

During construction, all instructions and official communications regarding environmental matters shall follow the **Table 5** below. The table defines and identifies the authority structure, and the communication lines for the various Project stakeholders involved in Lesotho Metropolitan Fiber Distribution Network (LEMOFI). The table aims to clarify the roles and responsibilities for all involved in environmental and social management throughout the construction phase and to ensure effective implementation of the provisions of the ESMP.

Table 5 List of Roles and Responsibilities

Role	Responsibilities	Number of Personnel	Location	Project Phase	KPIs
Government Departments					
Department of Water Affairs	Issue Water Use Permits	N/A	Office based	Pre-Construction	Water Use Permits
Department of Environment	Review and approval of the ESIA and ESMP	N/A	Office based	Pre-Construction	Record of Decision
Roads Directorate	Approval of Contractor Wayleave applications for Class A Roads	N/A	Office based	Pre-Construction	Wayleave Approvals
Maseru City Council	Approval of Contractor Wayleave applications for Class B Roads in Maseru Metropolitan	N/A	Office based	Pre-Construction	Wayleave Approvals
Urban and Community Councils	Approval of Contractor Wayleave applications for Class B Roads in towns and villages respectively	N/A	Office based	Pre-Construction	Wayleave Approvals
Lesotho Electricity Company Communication					
LECC – Project Manager	• Implementer of the LEMOFI project • Overall procurement issues and preparation of the safeguard instruments, ensuring that the project is screened; stakeholders' engagements are done, ESMP is prepared, cleared, and disclosed • Ensure environmental specifications are included in designs, tender documents and contracts. • Appointment of a Project Supervision Consultant	1	Office based	Throughout Project Life Cycle	Approved • Designs Approved & Disclosed: • ESIA • ESMP Tender Documents Construction Contracts

Role	Responsibilities	Number of Personnel	Location	Project Phase	KPIs
Environment and Social Safeguards Specialist (ESSS)	• develop and oversee environmental and social policies and procedures, as well as reviewing and appraising the LEMOFI project for compliance with environmental and social requirements. • Ensures the PSC supervises the implementation of ESMP.	1	Office Based (Monthly project area site visits)	Construction and Operation Phases	Qualified ESSS engaged E&S Policy HS Policy GRM Monthly E&S Reports
Project Supervision Consultant					
Project Engineer (PE)	• Construction supervision in all the 10 project districts and shall be responsible for oversight and project progress reporting on E&S aspects of the project. • Provides E&S-related information to LECC and Contractor. • Ensures the Contractor complies with ESMP	1	Office based		Qualified Project Engineer Engaged Monthly reports indicating extent of compliance
Environment and Social Safeguards Manager (ESSM)	• Conduct pre-construction site inspection to identify all sensitive environments, habitats and No-Go areas. • Prepare a pre-construction audit report, which will include a photographic record of the site and will report on the key features of the site. The photographic record of the site shall serve as the	1	Office based	Construction Phase	Qualified ESSM Engaged E&S Monthly Reports E&S Quarterly Audits

Role	Responsibilities	Number of Personnel	Location	Project Phase	KPIs
	site baseline against which rehabilitation will be measured post-construction. • Monitoring the implementation of the ESMP, and the management measures contained in the ESMP, during construction. • Conduct regular audits to ensure that the system for implementation of the ESMP is operating effectively. The audit shall check that a procedure is in place to ensure that: o The ESMP and the Method Statements being used are the up-to-date versions o Emergency procedures are in place and effectively communicated to personnel; and o The audit programme shall consist of the following as a minimum: ▪ First audit no later than 1 month after construction commences ▪ Thereafter audits at monthly intervals, ▪ A post construction audit within 1 week after the Contractor has moved off site. This is to ensure that the Contractor has met all				

Role	Responsibilities	Number of Personnel	Location	Project Phase	KPIs
	his environmental obligations in terms of the ESMP, • Issuing instructions for corrective actions where there is non-compliance by the Contractor. • Reviewing and approval of proposed site layout plans, proposals for site infrastructure, pollution prevention measures and construction method statements and Safe Work Procedures produced by the Contractor for environmental compliance. • Compile monthly reports for distribution to the LECC and Department of Environment (DoE). • Recommend to the Project Engineer the removal of person(s) and/or equipment not complying with the Specifications • Compile a final closure report for submission to the DoE, once construction has been completed.				
Environment and Social Safeguards Officer (ESSO)	• Daily monitoring of project compliance with the ESMP requirements. • Facilitate a good relationship between the project and host communities through implementation of Grievance Redress	1 per Contract		Construction Phase	Qualified ESSO engaged per contract Monthly E&S Reports

Role	Responsibilities	Number of Personnel	Location	Project Phase	KPIs
	Mechanism (GRM) for timeous and effective dispute resolution.				
Contractors					
Contractor's Representative	• Compile all construction documents including construction and E&S Method Statements • Engagement of ECO, CRO and HSO		Site based		Full time, qualified and experienced ECO, CRO and HSO are on site. Monthly construction progress reports
Environmental Control Officer (ECO)	• Prepare Construction Environmental and Social Management Plan (C-ESMP). • Ensuring a copy of the C-ESMP and all agreed Method Statements are available on site. • Traverse the route with the Site Manager to check the surveyed construction path to draw attention to any sensitive areas in the section of the road that is being upgraded. • Daily and weekly site inspections including photographic monitoring to ensure compliance of all employees with the requirements of the ESMP.	1 per Contractor	Site based and Community based		C-ESMP E&S Method Statements Monthly E&S Reports Capacity Training and awareness registers

Role	Responsibilities	Number of Personnel	Location	Project Phase	KPIs
	• Recommend actions to address issues impacting on the environment to the Contractor. • Environmentally educate and raise the awareness of the Contractor and Project employees that includes sensitization, regarding protected areas such as rivers, wetlands, undisturbed area (indigenous vegetation), cultivated areas, graves and ash heaps, etc. • Maintain environmental incidents register to record incidents that occur on site because of the activities associated with the Project. Environmental incidents constitute all those activities and incidents that may have negative impact on the surrounding natural environment. The environmental incident report must contain as a minimum, a description of the incident, a statement on the severity and significance of the impact, and actions taken to remediate the resultant damage. • Monitor dust, noise, ecology and socio-economic indicators as required. • Compile monthly monitoring reports/checklists and submit to the Contractor.				

Role	Responsibilities	Number of Personnel	Location	Project Phase	KPIs
	• Prepare method statements based on the management and mitigation plans incorporated in the ESMP. • Distribute all statutory requirements, including permits, authorizations and licenses. • Compile weekly reports of all activities and incidents on site and consolidate weekly reports into a monthly report and submit to the ESSM for review. • Attend regular site meetings to report environmental issues. • Ensure that turning areas and stockpile areas that have been approved by the Project Engineer are carefully managed. • Ensure litter from construction crews is collected daily. • Ensure ESMP compliance				
Community Relations Officer (CRO)	• Keeping the project communities informed of the general progress of the construction works. • Receive and respond to complaints and/or grievances from the public about matters related to the works. • Ensuring that remedial and corrective action is taken whenever necessary in response to	1 per Contractor	Community based and site based	Construction Phase	Complaints and Grievance register Community Engagements Registers

Role	Responsibilities	Number of Personnel	Location	Project Phase	KPIs
	complaints and/or grievances received from the public. • Facilitate and participate in the dilapidation surveys to be undertaken by the Contractors' representative. • Inform local stakeholders of employment opportunities using approved recruitment strategy and structures. The CRO will represent the Contractor in the following activities: • Courtesy calls. • Information sharing. • Seeking permission from the communities through their leadership structures for permission to undertake activities such as the establishment of laydown areas and construction camps. • Permission for use of borrow pits and sand winning areas, as well as access roads. • Collecting information. • Consulting communities.				

Role	Responsibilities	Number of Personnel	Location	Project Phase	KPIs
Health and Safety Officer (HSO)	• Prepare health and Safety Management Plan and associated Safe Work Procedures as well as Daily Site Task Instructions (DSTIs). • Daily inspection to ensure that health and safety management plan is being adhered to. • Keeping a site diary in which events and concerns of health and safety significance are recorded. • Compile weekly reports of all activities and incidents on site and consolidate weekly reports into a monthly report and submit to the ESSM for review. • Attend regular site meetings to report health and safety issues. • Maintain health and safety incidents register to record incidents that occur on site because of the activities associated with the Project. • Where incidents are of serious nature (fatality or Lost Time Injuries), the Department of Labour and Lesotho Electricity Company Communication must be contacted.	1 per Contractor	Site and community based	Construction Phase	Approved Health and Safety Management Plan (HSMP) Completed DSTIs Toolbox Talks Registers Incidents and Accidents Registers Completed Inspection Checklist Monthly HS Report

4.0 PRE-CONSTRUCTION ENVIRONMENTAL SUBMITTALS

The Contractor will be required to complete risk assessment for every phase of work carried out and submit Method Statements for approval before construction can commence. This section outlines the controls, procedures and standards that must be submitted to the Contractor for approval prior to construction commencement. The summary of pre-construction submittals is presented in **Table 6**.

Table 6: Examples of Environmental Procedures to be developed by Contractor

Aspect to Audit	Roles and Responsibilities	Timing and Frequency	Target or Indicator
ECO, CRO, and HSO appointed, and responsibilities outlined in appropriate letters	Contractor	Prior construction	ECO, CRO, and HSO appointment, including outline of responsibilities.
Waste Management Method Statement	Contractor	Prior construction	Waste Management Method Statement approved by the Project Supervision Consultant.
Dust and Noise Management Plan	Contractor	Prior construction	Dust and Noise Management Plan approved by the Project Supervision Consultant
Health and Safety Management Plan	Contractor	Prior construction	Health and Safety Management Plan approved by the Project Supervision Consultant
Emergency Preparedness Plan	Contractor	Prior construction	Emergency Preparedness Plan approved by the Project Supervision Consultant
Storm Water Management Plan	Contractor	Prior construction	Storm Water Management Plan approved by the Project Supervision Consultant
Site establishment (Construction site, laydown areas) Method Statement and layout Plan	Contractor	Prior construction	Construction Camp site layout and Method Statement approved by the Project Supervision Consultant

Topsoil and Spoil Management Plan	Contractor	Prior construction	Topsoil and Management Plan approved by the Project Supervision Consultant
Chance Find management	contractor	Prior construction	chance find management plan approved by Project Supervision Consultant.
Code of Conduct	contractor	Prior construction	code of conduct approved by the Project Supervision Consultant
Consolidated training plan	contractor	Prior construction	training plan approved by the Project Supervision Consultant
Erosion prevention & erosion prevention & silting control	contractor	Prior construction	Erosion prevention, and silt control management approved by Project Supervision Consultant
Project machinery and vehicle traffic management plan	contractor	Prior construction	Project Machinery and vehicle traffic management plan approved by Project Supervision Consultant
Comprehensive labour management plan	contractor	Prior construction	Labour management plan approved by Project Supervision Consultant
Grievance redress Mechanism	contractor		Grievance redress Mechanism management plan approved by the Project Supervision Consultant
Rehabilitation and Reinstatement Plan	Contractor	Prior construction	Rehabilitation and Reinstatement Management Plan approved by the Project Supervision Consultant.

5.0 CAPACITY BUILDING

A key component of ESMP success depends on effective capacity building of the implementing and monitoring institutions, the training of staff and all others involved in the ESMP, including the construction contractors. These efforts will also be assisted by the implementation of technical assistance by outside consultants. The following training shall be considered, for effective implementation of this ESMP.

5.1 Capacity Building for the LECC

The key capacity requirement will be development of an overarching Environmental and Social Management System by LECC that can encompass overall management of the construction phase and then evolve to provide a robust management system for management of environmental and social issues for all the Project components.

The LECC has to establish environmental and social unit, headed by the Environment and Social Safeguards Specialist to oversee the preparation, implementation and oversight of the ESMP. The environmental and social unit shall be provided with enough technical and financial resources to complete this oversight role; external resources or contractors may be required.

ESSS will also be responsible for managing the social commitments included within this ESMP, e.g. implementation of the Community engagement processes, HIV/AIDS awareness programme, GBV, SEA/H as well as HIV/AIDS sensitisation programme, and impact enhancement commitments related to promoting the development of local communities.

In order to be effective, the ESS shall be capacitated to have the authority to negotiate on behalf of the LECC at the project site. This requires clarification as to which decisions ESSS can take unilaterally, and which are to be passed on to the Project Manager.

Moreover, LECC shall engage a Project Supervision Consultant (PSC), who will supervise all the construction projects in 10 districts under direct supervision of the Project Manager (PM).

5.2 Capacity Building for Construction Contractors

The construction contractors shall have staff trained to ensure contractor compliance with ESMP requirements. Continuous, on job capacity building for construction workers will be in the form of toolbox talks, that will be carried out on weekly basis, as per the construction works schedules. Toolbox talk topics will be determined by the nature of work hazards identified for a particular work activity. Specific training to the construction contractor environmental, health and safety unit should be provided as follows:

- Safety rules
- Occupational health
- Basic health hygiene
- Alcohol and drug abuse
- HIV and AIDS
- Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH)
- Gender Based Violence (GBV)
- Protection of areas beyond those demarcated for construction works
- Water conservation
- Water pollution
- Fires and fire management
- Emergency response and evacuation procedures, e.g. in the event of fire, electrocution, etc.
- Relationships with the local communities
- Chance Find procedures (**Appendix 1**)
- Litter and waste management
- Environmental and Social Safeguards
- Management of hydrocarbon spills
- Project specific Grievance redress mechanism

Other relevant topics, that the project manager may see necessary.

6.0 MONITORING AND REPORTING REQUIREMENTS

Effective monitoring, and reporting is essential for rendering an ESMP of practical value. Routine independent auditing provides the necessary impetus for continual improvement. Without these two fundamental elements, such systems simply degenerate into data collecting exercises. Performance monitoring, reporting and auditing should be carried out to ensure compliance with the requirements of this ESMP. The final scope and format of all reports proposed herein will be agreed with the African Development Bank (AfDB) and Lesotho Electricity Company Communication (LECC) prior to them being required and produced. Furthermore, each of these reports will be submitted to the AfDB and the LECC for review and disclosure.

6.1 Adaptive Management

The ESMP contained herein will adopt an “adaptive management” approach throughout the life cycle of the Project. The creation of the plans at the outset is a fluid process with the management objectives and performance indicators tailored to the current design and objectives of the Project. The ESMP utilizes to the extent possible existing project knowledge to fully address the actual environmental and social impacts of the Project at the time and allow flexibility in environmental and social management decisions made on the Project.

To ensure adaptive management of the ESMP the following actions will be implemented:

- The ESMP will be reviewed and amended in accordance to the Project design and status as it evolves.
- Key information about any changes to project description will be regularly reviewed (monthly) and site visits undertaken by the LECC staff including the ESSS, dedicated to the project, to identify the true impacts of the Project.

Ongoing evaluation of the effectiveness of measures included in the ESMP will be undertaken on a regular basis as the Project evolves and develops and throughout design, construction, operation and decommissioning of the Project. Evaluation will be undertaken through ongoing communication with, contractors, stakeholders and the AfDB supplemented by site audits and monitoring data review to identify weaknesses and / or gaps in the management plan. The ESMP will be changed and/or updated

accordingly to ensure appropriate, robust and effective environmental and social management commensurate to the scale of the Project through its lifetime.

6.2 ESMP Periodic Monitoring and Reporting by LECC

Environmental and social supervision shall be completed during project construction to ensure compliance of the construction contractor with ESMP provisions and other regulatory requirements. Monitoring shall also be done during site preparation, construction and operations to verify the success of mitigation measures.

The ESSS shall periodically review, monitor and audit the effectiveness of the ESMP. During construction and operation phases, weekly, and monthly inspections of the project shall be carried out, using the monitoring checklist in **appendix 12, 13 and 14,** respectively. Environmental and social audits shall be undertaken quarterly during the construction phase or at predetermined intervals deemed appropriate by the conditions of the Record of Decision (RoD) issued by the Department of Environment. Both the Environment and Social Safeguards Specialist (ESSS) and Project Manager (PM) must ensure that auditing takes place to ensure that the implementation of LEMOFI remains compliant with regulatory commitments as well as HSE standards and policies (Chapter 2).

The ESSS shall review the ESMP to assess its effectiveness and relevance as follows:

- A full review shall be periodically when project scopes changes;
- Following a reportable incident, or a significant non-compliance; and
- Following an addition, up-date or change order to the ESMP.

The review of the ESMP should consider the following:

- Adequacy of data collection, analysis and review;
- Reporting;
- Non-compliances; and
- Corrective actions implemented.

The ESMP shall also be reviewed periodically to evaluate environmental controls and procedures to make sure they are still applicable to the activities being carried out.

The review shall include analysis of the data collection and analysis of data, monitoring reports, incident reports, complaints/grievances and feedback from stakeholders, reports, consultation meeting minutes and training records to evaluate the effectiveness of ESMP procedures. Site visits, photographic evidences, interviews and other auditing methods may also be used.

6.3 ESMP Monthly Monitoring and Reporting by Project Supervision Consultant

6.3.1 Environmental Monitoring

At the onset of the project, the Project Supervision Consultant (PSC) through the Environment and Social Safeguards Manager (ESSM) is to compile an environmental monitoring programme and submit it to LECC for approval.

The monitoring programme may comprise three aspects:

- **Baseline Observation:** This should occur before the start of the project or activity to determine the status of the environment before any impacts associated with the project or activity.
- **Impact (or performance) Monitoring:** This monitoring should be ongoing throughout the construction phase and must be implemented to ensure that environmental and social impacts are within the predicted levels and that specified environmental and social performance targets are being achieved.
- **Compliance Monitoring:** This monitoring should be implemented to ensure that the prescribed mitigation measures are having the predicted and desired effect. This monitoring should be conducted periodically, the timing of which will vary from activity to activity.

6.3.2 Monthly Reporting

For the construction contract the Project Supervision Consultant (PSC) shall prepare separate monthly progress reports on the construction works, planned works and expenditure. PSC shall submit one paper copy and electronic copy backed up by excel spreadsheets of the monthly progress. The monthly progress reports shall be made as of the end of each calendar month and submitted by the 15th day of the following

month and shall include reports for each month of operation including advice to the LECC. When any phase of the project work falls behind schedule, the PSC shall make recommendations in writing to LECC as to the action to be taken to expedite progress.

The monthly progress reports shall contain among other sections, environmental and social safeguards compliance section detailing the compliance and noncompliance issues as per the ESMP requirements.

6.4 ESMP Monitoring and Reporting by Contractor

All contractors will be required to prepare a monthly report for issue to the LECC Environmental and Social Safeguards Specialist (ESSS). This report shall be guided by a weekly, and monthly monitoring checklist that the contractor is required to fill prior to preparation of the monthly report. The checklists are core verified and signed by the ESSM.

These reports should normally be no more than one or two pages in length, to summarize the following:

- Progress in implementing the ESMP and parallel management plans;
- Findings of the monitoring programmes, with emphasis on any breaches of the control standards, action levels or standards of general site management;
- Outstanding Non-Compliance Reports (**Appendix 5**)
- Summary of any complaints by external bodies and actions taken/to be taken; and
- Relevant changes or possible changes in legislation, regulations and international practices.

Any breaches of the acceptable standards specified by law/construction permits and/or this ESMP should be reported to LECC, using NCR Form.

6.5 Record Keeping

Project Site record keeping must be maintained in an orderly fashion in both electronic and hard copy forms with the intent of ensuring easy reference. The ECO will,

therefore, maintain an environmental site file containing, as a minimum, the following documents:

- Most recent version of the ESMP
- Health and Safety Management Plan
- Final design documents and diagrams issued by the Contractor of environment relevance
- Communication detailing changes of design/scope that may have environmental implications
- Monthly summaries of daily report (**Appendix 6&7**)
- Site monitoring reports
- Complaints register
- Environmental Induction and Awareness raising training manual and attendance registers
- Incident and accident registers and report
- Grievance and/or complaints registers;
- Emergency preparedness and response plan;
- Records of disciplinary procedures
- Monthly site construction meeting minutes
- Relevant permits including the Record of Decision issued by Department of Environment (DoE)
- Safe work Procedures; and
- All Method Statements from the Contractor (**Format Appendix 3**)

7.0 INFORMATION DISCLOSURE AND STAKEHOLDER CONSULTATIONS

The World Bank disclosure policies require that project ESMF and ESIA/ESMP are disclosed, and project reports are made available to project affected groups, local NGOs, and the public at large. Public disclosure of ESIA/ESMP documents is also a requirement of the Government of Lesotho's environmental procedures.

7.1 Documents Disclosure

The Ministry of Energy will be the project owner while the Lesotho Electricity Company Communication will be the project implementation unit (PIU) and they will be assisted by the Department of Environment. These key stakeholders will be continuously engaged throughout the project implementation to ensure effective implementation of this ESMP.

The LECC has prepared an **Environmental and Social Impact Assessment (ESIA)** to establish environment and social safeguards requirements, identifying potential adverse environmental and social impacts; specified measures for managing, mitigating and monitoring these identified environmental and social impacts during project preparation, construction as well as operation; and outlined training and capacity building arrangements needed to implement the ESIA provisions. The ESIA proposed a generic Environmental and Social Management Plan (ESMP) to mitigate potential impacts during project implementation.

The ESIA is not yet disclosed. Under the Lesotho Environment Act No. 10 of 2008, disclosure is a mandatory component of the Environmental and Social Impact Assessment (ESIA) process. The ESIA will be disclosed in the LECC and AfDB websites as well as in notices in newspapers of where the ESIA can be physically obtained.

7.2 Stakeholders Engagement

Public consultation will be conducted in line with the requirements of Environmental Act 2008 which calls for utilisation of all forms of consultation and stakeholder engagement and the Bank's requirements for public consultation.

Consultation mechanisms will be chosen that take into account all stakeholders and are accessible to the communities. Stakeholders' engagement techniques will vary depending on who is being consulted and the nature and complexity of the issues. Available resources will also determine the type of technique that can be utilised, i.e. the timeframe, funds, and staff available.

A range of consultation techniques will be utilised to ensure greater participation levels. These will include:

- **Community gatherings** – open to the community to brief interested residents on specific project issues and get their feedback.
- **Focus Group Discussions** – open by invitation to specific groups with relevant experience of the issue at hand
- **Advertising using media platforms** - open to all stakeholders with the aim of briefing them on specific project issues and getting their feedback. Advertising will be in in the print and electronic media

7.3 Grievance Redress Mechanism

Grievance mechanisms provide a formal avenue for affected groups or stakeholders to engage with LECC or LEMOFI projects communities, or any project workers on issues of concern or unaddressed impacts. Grievances are any complaints or suggestions about the way the LEMOFI projects are being implemented. They may take the form of specific complaints for damages/injury, concerns about routine project activities, or perceived incidents or impacts. Identifying and responding to grievances supports the development of positive relationships between projects and affected groups/communities, and other stakeholders.

The AfDB standards outline requirements for grievance mechanisms for some projects. Grievance mechanisms should receive and facilitate resolution of the affected institutional or communities' concerns and grievances. The AfDB states the concerns should be addressed promptly using an understandable and transparent process that is culturally appropriate and readily acceptable to all segments of affected communities, at no cost and without retribution.

Mechanisms should be appropriate to the scale of impacts and risks presented by a project. Grievances can be an indication of growing stakeholder concerns (real and perceived) and can escalate if not identified and resolved. The management of grievances is therefore a vital component of stakeholder management and an important aspect of risk management for a project. Projects may have a range of potential adverse impacts to people and the environment in general, identifying grievances and ensuring timely resolution is therefore very necessary.

Comprehensive Grievance Redress Mechanism is addressed in the ESIA Chapter 7.

7.3.1 Grievance Redress Process

Communities and individuals who believe that they are adversely affected by LEMOFI project may submit complaints to existing project-level grievance redress mechanisms through LECC website, LECC walk-ins; phone call; letter, e-mail; recorded during public/community engagements, CRO on site, Suggestion box on site, etc., Processing of the grievance will follow the grievance redress process outlined in **Table 7** below.

Table 7: Grievance Redress Process

Process	Description	Time frame	Process Description
Identification of grievance	Face to face; phone; letter, e-mail; recorded during public/community	1 Day	A number of uptake channels will be used to identify and accept
Grievance assessed and logged	Significance assessed and grievance logged in GRM Register Form (**Appendix 8/9**)	4-7 Days	Once AP have submitted a grievance, it will be accessed and logged in the grievance register (**Appendix 8/9**) and AP will receive acknowledgment of receipt within 4-7 days, regardless of whether they were received in writing or verbally unless AP refrain from providing contact

			details. The grievance will be assessed and investigated (**Appendix 10/11**).
Grievance is acknowledged	Acknowledgement of grievance will be through appropriate medium,	4-7 days	telephone, acknowledgement form, email, WhatsApp etc. to be used to confirm receipt of a grievance from an AP and may invite the AP to an initial grievance meeting.
Development of response	Grievance assigned to appropriate party for resolution Response development with input from management/ relevant stakeholders	4-7 Days 7-14 Days	It's important to respond to every grievance in a timely, fair manner, taking the proper grievance- handling steps.
Response signed off	Redress action approved at appropriate levels	4-7 Days	Each redress stage requires a response sign off by the resolution provider.
Implementation and communication of response	Redress action implemented and update of progress on resolution communicated to complainant	10-14 Days	Throughout the redress process, effectively communicating the status, progress, and referrals made, to AP will be critical to acceptable resolution.
Complaints Response	Redress action recorded in grievance log book Confirm with complainant that grievance can be closed or determine what follow up is necessary	4-7 Days	The step gives AP opportunity to accept or reject the provided resolution in writing within 4-7 days of receiving a resolution, for documentation, and future reference.
Close grievance	Record final sign off of grievance If grievance cannot be closed, return to step 2 or refer to sector minister or recommend third-party arbitration or resort to court of law.	4-7 Days	Final sign off by LECC Project Manager if it is successfully resolved.

7.3.2 Establishment of Grievance Redress Committee

Each sub project investment will have a Grievance Redress Committee (GRC) established for the purpose of handling grievances related to environmental and social concerns and will be coordinated by the CRO. The GRCs will be ad hoc institutions established primarily for the LEMOFI projects and will have no legal mandate and should at a minimum comprise of:

1. Project Affected Persons representative;
2. Environmental and Social Safeguards Specialists from LECC;

3. Environment and Social Safeguards Manager from PSC;
4. Community Relations Officer (CRO) from Contractor;
5. Women and Youth Representatives, active in the project area;
6. Representation of active NGOs or CBOs in project area

7.3.3. OMBUDSMAN/Court of Law

The Director must within 30 days of receipt of the request, will issue a record of decision affirming, modifying or reversing its earlier decision. The option of appeal is open to both the developer and the Interested and Aggrieved Parties. This step is a prerequisite before an aggrieved party may proceed to seek resolution from office of Ombudsman or court of laws.

8.0 BUDGET AND COMMITMENT

This ESMP must be included in the Tender Documents sent to all potential Bidders so that they can price the environmental requirements in detail. Adjudication of the tenders must include an assessment of the contractor's Environmental and Social Policy, their proposals for environmental management on site, appointment of suitably qualified Environment and Social Safeguards Specialist (1) by LECC, , Environment and Social Safeguards Officers (5 per year), Environment Control Officers (5 per year), Community Relation Officers (5 per year) and Health and Safety Officers (5 per year) by contractors.

The budget estimate for the LECC to engage the Environment and Social Safeguards Specialist is **USD 36,666.72** per annum and **USD 110,000.16** for the entire LEMOFI implementation.

During the final design and planning stage, funding will be from the LEMOFI's Project Budget to ensure that appropriate financial provision is made for environmental, social, health and safety management of the project. During construction, the cost of mitigation must be met by the contractor who shall include these costs in his overall Construction Budget.

Preliminary estimated costs for the implementation of the ESMP are presented in Chapter 10. The Contractor will revise these costs and develop operating costs for the ESMP.

8.1 Detailed Social and Environmental Management Budget

To allocate the total budget of **USD 258,156.38** across the key components of the **LEMOFI project** (Pre-construction Phase, Construction Phase, Mitigation Measures, and GRM Implementation, Engagement of Environment and Social Safeguards Specialist and SEMP Audit), we can use a reasonable percentage-based distribution that reflects typical environmental and social management needs during such project phases.

This allocation maintains flexibility while ensuring that high-impact areas like mitigation and construction oversight receive the largest shares, while still supporting participatory and preparatory efforts like GRM and pre-construction activities.

Table 8 below provides budget estimates for the GRM Implementation.

Table 8 GRM (Grievance Redress Mechanism) Implementation

Activity	Estimated Costs (Maloti)	Estimated Cost (USD)
Community meetings and awareness on GRM	M30,000.00	USD 1,666.67
Focal Points trainings on GRM and logistics support to key community based GRC members	M120,000.00	USD 6,666.67
Set up of GRM Infrastructure	M33,200.00	USD1,844.44
Communication materials and printing including Documentation and grievance logging tools	M50,000.00	USD2,777.78
Subtotal	**M233,200.00**	**USD12,955.56**
Contingency (10%)	**M23,320.00**	**USD1,295.56**
Grand Total	**M256,520.00**	**USD14,251.12**

8.2. Social and Environmental Management Audit Plan

The budget for the annual SEMP Audit will be **USD 25,000.00** per year hence **USD 75,000.00** over three (3) years. This SEMP Audit report will be used to ensure that the Lesotho Metropolitan Fiber Infrastructure Expansion Project (LEMOFI) achieves effective implementation, monitoring, and continual improvement of its Environmental and Social Management Plan (ESMP). The audit process will verify compliance with national regulations, AfDB requirements, and international best practices, and will facilitate adaptive management throughout the project lifecycle.

9.0 IMPACT IDENTIFICATION AND MITIGATION

9.1 Impact Identification

The anticipated impacts were determined based on the interaction between project activities and environmental sensitivities. The identified potential impacts during the different phase of the proposed project are listed in **Table 9** below.

Table 9 Identified Proposed Project Impacts

IMPACTS	Phases of the Project	
	Construction	Operation
Acceleration of erosion	√	
Alteration of local topography	√	
Alteration of soil profile	√	
Blockage of drainage pattern	√	
Blockage of roads	√	
Change in land use	√	
Change in water quality	√	√
Contamination of groundwater	√	√
Contamination of surface water	√	√
Contamination of soil	√	√
Damage to communication cables	√	
Exposure to heat and light	√	
Impairment of air	√	√
Improved telecommunication		√
Improved livelihood	√	√
Increased demand for social infrastructure	√	√
Increased surface water turbidity	√	
Increase in incidence of STIs and HIV	√	
Increase in income	√	√
Increase in price of locally sources material	√	
Increase in social vices	√	√
Increase in opportunities for business and employment	√	√
The influx of migrant workers and camp-followers	√	√
Land utilised for temporary camps	√	
Legal issues	√	√
Loss of land	√	√
Loss of employment/income	√	
Noise and vibration nuisance	√	
Road accidents	√	√

Worksite accidents	√	√

9.2 Summary of Residual Impacts After Mitigation

Residual effects can be considered as those that remain significant following the application of mitigation measures, although they are likely to have reduced in magnitude as a result of the mitigation measures implemented.

Overall, with the provision of the proposed mitigation measures are outlined in **Table 10-13** as part of the Environment and Social Management Plan, the positive impacts of the project will considerably outweigh the negative impacts. The public as a whole will benefit from the completion of the project. Once the mitigation measures outlined are implemented, the residual impact of construction and operation on the different elements identified will not be significant.

An overall mitigation measure is to undertake a Job Hazard Analysis, to enable each worker to assess the risk associated with the job and work safety using procedural guidelines in handling equipment and the fatalities.

9.2.1 Community Unrest

Widespread youth restiveness is common in the project area. However, issues about employment if not well managed would likely elicit community unrest.

Mitigation

The Client through Project Supervision Engineer shall maintain and maintain channels of communication with the project communities during all phases of the project. Also, the contractors will engage general labourers from local communities where feasible.

From the foregoing, the impact rating should drop from high to medium, since it is impossible to eliminate all sources of community disagreements in a project such as this.

9.2.2 Influx of People and Increase in Social Vices

The influx of labour and camp followers of diverse characters is anticipated, this will result in an increase in social vices such as stealing, drug abuse, alcoholism and sexual promiscuity.

Mitigation

The Client will carry out sustained awareness raising campaigns amongst the workforce and also enforce an alcohol and drug policy. Access control will be maintained at worksites. The rating after mitigation will reduce from medium to low and not eliminated since behaviour change is a difficult process.

9.2.3 Enhancing Positive Impacts

9.2.3.1 Job Creation

The project is expected to create job opportunities during the different phases. There will be opportunities for skilled and unskilled employment. It is also expected that the engaged unskilled project community members that will be engaged during implementation will also acquire some on job skills which they can use for their own future development after completion of the project.

To enhance job creation opportunities throughout the project phases, the client will ensure that unskilled labourers are sourced from the project communities.

9.2.3.2 Business Opportunities

Engagement of local population as unskilled labourers means that more people will earn money to spend within and outside the project area hence, improvement in both local and national businesses. To enhance business growth, the contractors will be advised to source materials from project business where feasible.

9.2.3.3 Greenhouse Gas Emissions

ADSS Fibre: A Greener Internet Solution

Fibre is not only best internet technology with regard to speed and reliability, but also environmentally friendly. Fibre has minimal ecological impact, reduces waste, consumes minimal energy thus helps in decreasing greenhouse gas emissions.

In addition, greenhouse gases can be reduced through telecommuting. This requires both download and upload speeds to be at a sufficient rate. Copper upload and download speeds are often inadequate hence fibre offers symmetrical speeds resulting in quick uploading and downloading.

ADSS Fibre reduces the demand for Copper

DSL and cable internet use copper wire to transmit data. Copper mining is harmful to the environment and dangerous, producing hazardous chemical and toxic by-products. On the other hand, Optic Fibre utilises fibreglass which is made from quartz. Quartz occurs naturally as sand and rocks. Finally, the production and disposal of copper wire has more negative environmental impact footprint that production and disposal of quartz.

Energy Consumption

Optic Fibre uses up to twelve times less energy than copper by transmitting data using light. Furthermore, the energy consumed by copper and cable networks creates heat, which must be kept cool on the backend to prevent overheating. Cooling is accomplished with air conditioners, which consume a lot of electricity. By consuming less energy, fibre networks stay cooler hence no need for a cooling system

9.2.3 Site Rehabilitation

Once construction has been completed, the Contractor must ensure that all redundant construction materials and waste are removed from the site and disposed of in an appropriate manner. Rehabilitation shall ensure that all specified areas distributed by the works are returned to a similar or better state than before the construction works commenced. The method of vegetation removal and establishment where required will be specified by the Project Engineer. All surfaces should be re-vegetated accordingly. Mulch may be used to re-establish grasses and where plant material has been saved, they can be successfully planted onto the road.

9.4.1 Site Preparation

Once the site has been cleared of infrastructure and potential contamination, the slope must be re- graded in order to approximate the pre-construction aspect and contours. The previous infrastructure footprint area must be ripped a number of times in order

to reduce soil compaction. The area must then be covered with topsoil material from the stockpiles.

9.4.2 Seeding and Re-vegetation

Once the land has been prepared, seeding and re-vegetation will contribute to establishing a vegetative cover on disturbed soil as a means to control erosion and to restore disturbed areas to beneficial uses as quickly as possible. The vegetative cover reduces erosion potential, slows down runoff velocities, physically binds soil with roots and reduces water loss through evapotranspiration. Indigenous species (identified by a botanist with local knowledge) must be used for the re- vegetation.

9.4.3 Prevention of Soil Contamination

During the demobilisation phase, chemical soil pollution should be minimised as follows:

- Losses of fuel and lubricants from the oil sumps of vehicles and equipment should be contained using a drip tray with plastic sheeting and filled with absorbent material
- Using biodegradable hydraulic fluids, using lined sumps for collection of hydraulic fluids and recovering contaminated soils and treating them off-site
- Avoiding waste disposal at the site wherever possible, by segregating, trucking out, and recycling waste
- Containing potentially contaminating fluids and other wastes; and
- Cleaning up areas of spillage of potentially contaminating liquids and solids.

9.4.4 Alien Vegetation, Maintenance & Monitoring

It is recommended that a landscaper be deployed twice after growing season to monitor establishment of the newly planted vegetation as well as alien vegetation control. Of particular concern is the prevention of the infiltration of Kikuyu grass as well as *Argemone Ochroleuca*. Planting should be carried out as soon as possible after construction in order to prevent soil erosion and the invasion of alien vegetation onto the site.

Table 10-13 provides Environmental and Social Management Plan for Project Planning and Construction

10.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

This ESMP was developed with the aim of providing mitigation measures required for the management of identified environmental impacts of the proposed project inline with the assessment done in in the ESIA (Chapter 9). Mitigation measures are meant to minimize negative impacts and enhance positive impacts. The developed ESMPshould be implemented and monitored for all phases of the project.

ESMPs are designed;

- To prevent environmental degradation and adverse risks to human and ecosystem health,
- To make progressive environmental improvements,
- To achieve effective integration of environmental, economic and social considerations in the decision-making process,
- To promote shared responsibility for the environment,
- To promote the principles of ecologically sustainable development.

The comprehensive ESMP for the project phases presented in **Table 10 – 13** below.

Table 10 Environmental and Social Management Plan (ESMP) - Pre - Construction Phase (documentation and Personnel)

Activity	Potential Impact	Mitigation Measures
Obtain permits and permissions	Construction commencing without all legally required permits and permissions (i.e. borrow pits, water uses, tree removal licences)	Develop an environmental document control system/register where all permits and permissions will be filed, and updates stored.
Community liaison	• Community discontent • Delays in construction programme	• Develop stakeholder engagement strategy • Liaison structures are to be established with local police to monitor social changes during the construction phase. • Liaison should be established with existing crime control organisations. • Liaison structures should be established with authorities (chiefs, councillors, mayors). • A suitably qualified community Relations officer (CRO) should be appointed (preferably form the local community) • A grievance mechanism should be developed to deal with any issues that might arise due to construction activities • A complaints register should be developed
Contractor's Environmental Control Officer mobilised to site	Inadequate implementation and monitoring of environmental requirements on site if environmental officer is not on site.	Appoint a suitably qualified Contractor's Environmental Control Officer (ECO).
Develop environmental induction training programme for all staff and labour.	Inadequate compliance to the environmental requirements.	Develop an environmental induction training programme.
Planning and design of camp sites – offices, staff and labour accommodation,	Environmental degradation, unnecessary removal of vegetation, loss of land, social	• The planning and design for the construction camp and construction site must ensure that there is a minimum impact on the environment. These areas must be kept to a minimum footprint size.

Activity	Potential Impact	Mitigation Measures
stores, equipment maintenance workshops, etc.	impacts, air quality, water quality and noise impacts	• A method statement is required from the Contractor at tender stage that includes the layout of the camp, management of the ablution facilities, access routes, power supply and wastewater management. The method statement must be approved by the Engineer. • As far as possible the construction camp must be located on already disturbed land with existing access roads if possible. • As far as possible the construction camp must be located more than 500 m from schools, hospitals, clinics, churches, spiritual sites and residential areas. • A site plan must be submitted to the Engineer for approval. • Develop a waste management plan. • Develop a storm water management plan. • Design water supply and sanitation infrastructure. • Make provision for a First Aid station at the camp.

Table 11 Mitigation Measures of the Proposed Project Activities – Preconstruction Phase

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
Land Acquisition	Loss of Land, Change in land use, and Legal issues due to land acquisition for LEMOFI implementation	L	This impact is negative and reversible, the probability of the impact arising is also low because there are already existing sites for construction. However, the Client will ensure: • Continuous consultation and engagements with project communities and other stakeholders shall be maintained to	L	• Minutes and Registers of Stakeholders Engagements • Compensation list • GRM in place and disclosed to stakeholders	LECC Project Supervision Consultant	During Pre-construction	Project Costs	

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
			forestall unrest in line with Client's grievance redress mechanism (GRM). • Proper land acquisition procedures must be followed where there is need for land acquisition especially for laydown areas, by the Contractor.						
Mobilisation (Transport) to the site	• Road Traffic accidents	M	To prevent road accidents, the Client will ensure:	L	• Traffic Management	Project Engineer	During Pre-Construction	1250.00	3,750.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
(equipment, personnel and construction materials)	due to construction vehicles and machinery movement		• Vehicles are inspected before mobilisation and an inspection certificate must be issued. • The use of PPE at sites; daily tool box talks and carry out job hazard analysis • Speed breakers at sections traversing communities • Conformance with national road traffic laws • All safety incidents will be reported and		Plan prepared and approved • Prepared traffic management monitoring checklist • Prepared vehicle, equipment and plant inspection checklist • Environmental induction training programme available when staff and	Contractor			

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
			investigated. Corrective actions will be implemented.		labour mobilised to site				
	Noise nuisance from construction vehicles and heavy machinery	M	The Client will ensure: • Regular maintenance of vehicles • Vehicles are turned off when not in use	L	• Implementable Noise Management Method Statement • Environmental induction training programme available when staff and labour mobilised to site	Project Engineer Contractor	During Pre-Construction	210.00	630.00
	Impairment of air quality from	L	The Client will ensure:	L	• Implementable Dust and	Project Engineer	During Pre-Construction	575.00	1,725.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
	exhaust fumes and dust generated by moving construction vehicles and land clearing		• Nose masks and earmuffs are worn by site workers during excavation • Water shall be sprayed on construction sites to reduce dust levels • Regular maintenance of backup generators • Generators are switched off when not in use		Emissions Management Method Statement in place • Prepared Dust inspection checklist • Prepared vehicles, generators and equipment inspection checklist • Environmental induction training programme available when	Contractor			

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
					staff and labour mobilised to site				
	Loss of Biodiversity due to land clearing and trespassing on ecologically sensitive areas	L	• Implement good housekeeping practice on site • Storing and handling of the hazardous waste following approved Waste Management Plan (WMP) • Limiting land clearing	L	• Implementable Biodiversity Management Method Statement in place • Prepared biodiversity monitoring checklist • Waste Management Plan (WMP) in place	Project Engineer Contractor	During Pre-Construction	320.00	960.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
			• Avoid erodible areas		• Environmental induction training programme available when staff and labour mobilised to site				
Energy consumption (provision of energy for pre-construction activities	Impairment of air quality use of petrol generators	L	• Regular maintenance of backup generators • Generators are switched off when not in use	L	• Implementable Emissions Management Method Statement in place • Prepared generators inspection checklist	Project Engineer Contractor	During Pre-Construction	110.00	330.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
					• Environmental induction training programme available when staff and labour mobilised to site				
	Noise and Vibration Nuisance due to construction activities	M	• Generators are fitted with effective silencers • Regular maintenance of generators • Noise barriers are erected • Generators are switched	L	• Implementable Noise and vibrations Management Method Statement in place • Prepared noise and vibrations	Project Engineer Contractor	During Pre-Construction	125.00	375.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
			off when not in use		monitoring checklist • Environmental induction training programme available when staff and labour mobilised to site				
	Contamination of soil due to oil spills, general waste and sanitary waste disposal	L	• Soil disturbance will be kept to the minimum required for operation and safety • Oil spill containment	L	• Prepared and approved implementable soil and spoil management method statement in place	Project Engineer Contractor	During Pre-Construction	125.00	375.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
			will be provided to prevent an oil spill from getting to the soil • Implement good housekeeping practice on site • Storing and handling hazardous waste following approval of the WMP.		• Prepared soil and spoil inspection checklist for monitoring • Prepared and approved Waste Management Plan in place • Environmental induction training programme available when staff and labour mobilised to site				

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
Site preparation – land clearing, removal of vegetation	Acceleration of erosion due to movement of project vehicles and surveys	L	• Stabilise soil within the camp site mechanically using compactors to reduce erosion potential • Avoid erodible areas	L	• Prepared and approved implementable soil and spoil management method statement in place • Prepared soil and spoil inspection checklist for monitoring • Environmental induction training programme available when staff and labour	Project Engineer Contractor	During Pre-Construction	125,00	375.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
					mobilised to site				
	Alteration of local topography due to surveys	L	• Re-grading of the sites • Restoring top soil • Restoring the original profile of the topography and the soil • Strictly regulating heavy equipment traffic	L	• Prepared and approved implementable soil and spoil management method statement in place • Prepared soil and spoil inspection checklist for monitoring • Environmental induction training programme	Project Engineer Contractor	During Pre-Construction	130.00	390.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
					available when staff and labour mobilised to site				
	Blockage of drainages due to erosion because of geotechnical surveys	L	• Regular cleaning of drainages	L	• Prepared and approved storm water management method statement in place	Project Engineer Contractor	During Pre-Construction	100.00	300.00
	Contamination of soil hydrocarbon spills from project vehicles,	L	• Soil disturbance will be kept to the minimum • Oil spill containment will be provided to	L	• Prepared and approved implementable soil and spoil management method statement.	Project Engineer Contractor	During Pre-Construction	120.00	360.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
			reduce soil contamination • Store and handle hazardous waste following approval of the WMP • Place filtration berms and sediment barriers • Prohibiting refueling near waterways		• Prepared soil and spoil inspection checklist for monitoring				
	Impairment of air quality from exhaust fumes and petrol generators	L	• Only inspected and approved equipment is used	L	• Implementable Emissions Management Method Statement	Project Engineer Contractor	During Pre-Construction	-	-

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
			• Equipment engines are turned off when in use		• Prepared generators inspection checklist				
	Noise and Vibration nuisance from movement of heavy machinery and project vehicles as well as survey equipment	M	• Equipment must be fitted with effective silencers • There will be regular maintenance of equipment • Vibration containment be made for equipment which is likely to cause vibrations	L	• Implementable noise and vibration Management Method Statement in place Environmental induction training programme available when staff and labour mobilised to site	Project Engineer Contractor	During Pre-Construction	110.00	330.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
			• PPE will be used at all times						
	Worksite accidents from falling at heights, being hit by moving vehicles, slipping	M	• Workers and visitors use appropriate PPE • Use of warning signs • Non-consumption of alcoholic beverages on work site • Well stocked First aid kit will always be available within the site	L	• Prepared and approved of Health and Safety Management Plan • Environmental induction training programme available when staff and labour mobilised to site	Project Engineer Contractor	During Pre-Construction	450.00	1,350.00
	Habitat Alteration due to	L	• Contain oil spills	L	• Prepared and approved of	Project Engineer	During Pre-Construction	Covered in Alteration	

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicator	Responsibility	Monitoring Frequency	Costs (USD) per Annum	Grand Total Costs (USD)
	geotechnical surveys and movement of project vehicles.		• Minimise destruction or modification of the vegetation cover by restoring vegetation at the end of the work		Hazardous Material and Waste Management Plan • Environmental induction training programme available when staff and labour mobilised to site	Contractor		of local topography due to surveys.	
	Per Annum		**Over 3 Years**						
Total	**USD 3,750.00**		**USD 11,250.00**						
10% contingency	**USD 375.00**		**USD 1,125.00**						
GRAND TOTAL	**USD 4,125.00**		**USD 12,375.00**						

Table 12 Environmental and Social Management Plan for Construction Phase

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
Inspection and Upgrading of existing the optic fibre and associated infrastructure	Noise and vibration nuisance from generators, project personnel and vehicles, construction equipment and heavy machinery	M	• Regular maintenance of backup generators • Generators are switched off when not required • Use of renewable energy e.g. solar •	L	• Filled Equipment, vehicles and plant Inspection checklist	Contractor Project Engineer	Daily	150.00	450.00
	Impairment of air quality emissions from trucks and equipment movement. Excavation and clearing of land	L	The Client will ensure: • Maintenance of engines and exhaust gas check • Nose masks and earmuffs are worn by site workers during excavation	L	• Filled Equipment, vehicles and plant Inspection checklist	Contractor Project Engineer	Daily	225.00	675.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
			• Use of loading and unloading equipment that minimises the height of fuel drop to the stockpile to reduce the generation of fugitive dust • Regular maintenance of backup generators • Generators are switched off when not in use						
Trenching of Optic Fibre and laying of Fibre cables	Loss of vegetation cover with possible impact on biodiversity loss due to land clearing and holes excavation.	L	• Place filtration berms and sediment barriers • Contain oil spills • Minimise destruction or modification of the vegetation cover by restoring vegetation at the end of the work	L	• No trees and vegetation removed outside the construction footprint • No litigation due to unauthorized	Contractor Project Engineer	Daily	1000.00	3000.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
	Movement of construction vehicles and heavy machinery				removal of vegetation.				
	Noise and Vibration Nuisance due to construction activities including poles installations, movement of heavy machinery and project vehicles as well as noise from construction personnel	M	• Generators are fitted with effective silencers • Regular maintenance of generators • Noise barriers are erected • Generators are switched off when not in use	L	• Noise and vibration monitoring indicates that noise and vibrations are within the guideline limits • No complaints regarding noise pollution received from community members and landowners.	Contractor Project Engineer	Monthly	125.00	375.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
					• Noise level monitoring results.				
	Impairment of air quality due to exhaust fumes from construction vehicles and heavy machinery, petrol generators as well as dust	L	• Maintenance of engines and exhaust gas check • Nose masks and earmuffs are worn by site workers during excavation • Use of loading and unloading equipment that minimises the height of fuel drop to the stockpile to reduce the generation of fugitive dust • Regular maintenance of backup generators	L	• No complaints regarding air pollution received from community members and landowners. • Air quality monitoring results.	Contractor Project Engineer	Monthly	125.00	375.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
			• Generators are switched off when not in use • Dust suppression						
	Contamination due to oil spills from equipment and machinery as well as vehicles	L	• Regular maintenance of equipment • Soil disturbance will be kept to the minimum required for operation and safety • Oil spill containment will be provided to prevent an oil spill from getting to the soil • Implement good housekeeping practice on site • Storing and handling hazardous waste following approval of the WMP.	L	Bioremediation site set up and operating	Contractor Project Engineer	Weekly	1000.00	3000.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
	Waste generation from excavated materials	L	• All other waste generated including environmentally deleterious materials generated by construction activities will be disposed of appropriately at designated disposal sites • Generation of all waste is minimised as much as practically possible • Unsuitable excavated materials shall be systematically carried away from areas prone to erosion • Reuse waste material wherever possible and	L	• Topsoil is stripped and stored separately • Topsoil is replaced as required. • Excavated material is stockpiled and replaced as required. • Excess material is disposed of at a designated spoil site • A spoil site is designated	Contractor Project Engineer	Daily	2,770.00	8,310.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
			use designated disposal sites • Used oil and lubricants will be recovered and reused or removed from site to an approved disposal facility in South Africa • Oil waste, debris, and/or other waste materials must not be burned • All the construction camps and facilities will be dismantled and removed from the site unless otherwise desired by the local authorities or communities		and used for the disposal of all material, unless otherwise determined.				

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
			• The site will be restored to a condition in no way inferior to the condition prior to the commencement of activities • Safety measures must be followed while disposing waste • Prepare waste management plan (WMP)						
Construction of manholes and installation of various equipment, power generation equipment	Waste Management • Potential effects will be of aesthetics and nuisance of waste such	M	• All other waste generated including environmentally deleterious materials generated by construction activities will be disposed of appropriately at	L	• No litter or large amounts of construction waste seen on site. • Employees aware of the importance of	Contractor Project Engineer	Daily Weekly	2000.00	6000.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
	as scrap metals, paper, wood, optic fibre cables etc.		designated disposal sites • Generation of all waste is minimised as much as practically possible • Unsuitable excavated materials will be systematically carried away from areas prone to erosion • Reuse waste materials wherever possible and use designated areas for disposal • Used oil and lubricants will be recovered and reused or removed from site to an approved disposal facility in South Africa		recycling waste. • Marked bins for recyclable materials. • Bunded waste collection facility erected on Site. • Bins and skips emptied regularly. • Waste management plan implemented on Site.				

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
			• Oil waste, debris, and/or other waste materials must not be burned • Safety measures must be followed while disposing waste • Prepare waste management plan (WMP)						
	Impairment of air quality from dust generated during excavation, exhaust fumes from construction vehicles, generators and machinery	L	• Only inspected and approved equipment is used • Equipment engines are turned off when in use • Construction of soundproofing walls around stationary power generation	L	• No complaints regarding air pollution received from community members and landowners. • Air quality monitoring results.	Contractor Project Engineer	Monthly	130.00	390.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
			• Regular maintenance of engines and equipment • Nose masks are worn by all workers during excavations						
	Noise and Vibration nuisance from movement of construction vehicles, machinery, generators and construction personnel shoutings.	M	• Equipment must be fitted with effective silencers • There will be regular maintenance of equipment • Vibration containment be made for equipment which is likely to cause vibrations • PPE will be used at all times • Monitoring the Noise quality at least three times a day	L	• Noise and vibration monitoring indicates that noise and vibrations are within the guideline limits • No complaints regarding noise pollution received from community	Contractor Project Engineer	Monthly	122.00	366.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
					members and landowners. • Noise level monitoring results.				
	Road/Worksite accidents from moving and operation of machinery as well as vehicles. Being hit by moving objects, Slipping, falling from heights,	M	• Vehicles are inspected on daily basis before commencement of works • Workers and visitors use appropriate PPE • Use of warning signs • Non-consumption of alcoholic beverages on work site • Well stocked First aid kit will always be available within the site • Flag personnel will be deployed to guide traffic where necessary	L	• No vehicle collisions due to construction activities. • Adequate signage erected in and around Site. • Number of licensed drivers	Contractor Project Engineer	Weekly	1000.00	3000.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
			• Informatory and warning signages provided will be retro-reflective for visibility in the night • All vehicles will be parked in designated parking areas • Speed breakers at sections transversing communities		• Number of roadworthy vehicles. • Number of flag personnel on site • Number of OH&S audits to be conducted.				
	Presence of transport vehicles and site machinery could restrict traffic fluidity and lead to quarrelling with Contractor	M	• Installing retro-reflective mobile signage in the work areas, especially at night and speed limit signs in dangerous areas • Restoring access for local residents, which	L	• Adequate signage erected in and around Site. • Number of flag personnel on siteworks. • Number of OH&S audits	Contractor Project Engineer	Daily	300.00	900.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
			had been restricted by the works • Ensuring compliance with local customs and traditions		to be conducted.				
Backfilling	Surface water may be polluted due to increased erosion, runoff from a construction site, and contamination by oil spills from equipment and machinery	L	• Soil disturbance will be kept to the minimum required for operation and safety to reduce erosion • Oil spill containment shall be provided to reduce oil spill from getting to the soil and surface • There will be regular maintenance of the equipment and machinery • Mechanically stabilizing the soil to	L	• Excavated material is stockpiled and replaced as required. • Excess material is disposed of at a designated spoil site • Excavate the sub-soil and rock and stockpile separately	Contractor Project Engineer	Daily	250.00	750.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
			reduce the potential for erosion • Avoid excavation/trenching and burial in the steeply sloped ground and avoiding the creation of great breaks • Limiting activities in erodible soil • After work, levelling the disturbed soil and revegetation to control erosion		from the topsoil. • Replace the stockpiled topsoil to fill the trench, allowing for some future settlement. • The width and depth of the trench, as well as the working place (footprint) adjacent to the trench must be specified in the form of a method				

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
					statement that will have been approved by the Engineer.				
	Waste Management Potential effects will be of aesthetics and nuisance of waste shall mainly come from discarded packaging materials such as scrap metals, empty plastic containers, poor disposal methods can lead to	M	• Toilets must be available on site • The site remains clean, well maintained, and free of hazards, with the thoughtful location of litter bins • Appropriate disposal of solid waste from construction activities and camps • Storage of lubricants, fuels and other hydrocarbons in self-contained enclosures • Sanitation facilities to avoid the release of	L	• Number of Ablution facilities for men and women provided • Records show regular cleaning and waste disposal at a licensed site • All toilets are removed once construction is complete in	Contractor Project Engineer	Daily	1000.00	3000.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
	environmental problems due to their non-biodegradable nature. Most of the packaging waste is expected to be reused.		wastewater and sewage to the environment • Reuse waste materials wherever possible and use designated disposal sites • Minimum waste is generated • Used oil and lubricants will be recovered and reused or removed from site in full compliance with national regulatory frameworks • Oil waste, debris and/or other waste materials will not be burned		each work area • No litter or large amounts of construction waste seen on site. • Number of Employees aware of importance of recycling waste. • Number of marked bins for recyclable materials. • Bunded waste collection				

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
			• Safety measures are followed while disposing of wastes		facility erected on Site. • Bins and skips emptied regularly. • Waste management plan implemented on Site.				
	Alteration of hydrological patterns resulting in soil erosion and destruction of biodiversity	L	• Mechanically stabilizing the soil to reduce the potential for erosion • Avoiding excavation and burial in the steeply sloped ground and avoiding the	L	• No evidence of pollutants released into streams and rivers. • No erosion caused by	Contractor Project Engineer	Weekly	500.00	1500.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
			creation of great breaks • Limiting activities in erodible soil • At the completion of work, levelling the disturbed soil and quickly revegetation to control soil erosion		construction activities.				
	Habitat alteration due to excavations	L	• Implement good housekeeping practice on site • Store and handle hazardous waste following approved WMP • Use of appropriate PPE • Backfilling must be followed by mechanical	L	• No disruption of the natural and existing landscape characteristics. • Trim areas already shaped to within an acceptable tolerance, with all undulations	Contractor Project Engineer	Weekly	525.00	1,575.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
			compaction to retain the original level • Re-vegetation with indigenous plants		following a smooth curve. Ensure that final trimmed levels make provision for the specified depth of the reapplied topsoil. • Shape areas to correct contours to within a tolerance of 300mm.				
	Worksite accidents due to slipping, dripping, falling from heights, being hit by	M	• Workers and visitors use proper PPE • Use of warning signs	L	• Registers of PPE issues • Registers on Toolbox Talks	Contractor Project Engineer	Weekly	1000.00	3000.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
	moving objects, improper use of machinery		• Non-consumption of alcoholic beverages on work site • First aid kit will always be well stocked and available		on proper PPE Use • Proper signage on site • Registers of Incidents and accidents • First aiders and first aid in place				
	Increase in communicable disease (including HIV/AIDS and STDs	M	• Inductions will be given to workers on communicable diseases • As much as possible provide psychological support to persons living with HIV/AIDS • Condoms to be provided in work areas	L	• Records of HIV awareness training. • Records of HIV counselling and testing. • OH&S audit results are positive	Contractor Project Engineer	Weekly	675.00	2025.00

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs Per Annum (USD)	Grand Total Costs (USD)
					• Areas where condoms are placed e.g. toilets				
Site demobilisation	Road traffic accidents due to moving vehicles and machinery	M	• Enforcement of the use of PPE • Daily tool box talks • Job hazard analysis is carried out • Prepare and implement Traffic Management Plan	L	• Traffic Management plan in place • No vehicle collisions due to construction activities. • Adequate signage erected in and around Site.	Contractor Project Engineer	Weekly	1200.00	3600.00
	Per Annum		**Over 3 Years**						
Total	**USD 14,097.00**		**USD 42,291.00**						
10% Contingency	**USD 1, 409.70**		**USD 4,229.10**						
Grand Total	**USD 15,506.70**		**USD 46, 520.10**						

Table 13 Mitigation Measures of the Proposed Project Activities - Operation/Maintenance Phase

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
Operation and maintenance or inspection of the Fibre Network, maintenance of data center and access system locations	Noise and vibration nuisance due to removal of construction debris and temporary structures.	L	• Regular maintenance of backup generators • Vehicles are turned off when not in use • Noise barriers are erected	L	• Noise and vibration monitoring indicates that noise and vibrations are within the guideline limits • No complaints regarding noise pollution received from community members and landowners. • Noise level monitoring	LECC	Monthly	LECC Maintenance and operation budget

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
	Emissions during maintenance/servicing of production equipment and ancillaries	L	• Maintenance of engines and exhaust gas check • Regular maintenance of backup generators • Generators are switched off when not in use • Use of solar for backup	L	• No complaints regarding air pollution received from community members and landowners. • Air quality monitoring results.	LECC	Monthly	LECC Maintenance and operation budget
	Contamination due to oil spills from equipment and machinery	L	• Oil spill containment • Regular maintenance of equipment • Implement good	L	Bioremediation site set up and operating	LECC	Weekly	LECC Maintenance and operation budget

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
			housekeeping practice on site • Storing and handling hazardous waste following approval of the WMP.					
	Road Traffic accidents due to vehicles and machinery	L	• Vehicles are inspected on regular basis • Ensure that drivers obey traffic rules • All vehicles to be parked at assigned areas • Informatory and warning signages will be retro-	L	• No vehicle collisions due to construction activities. • Adequate signage erected in and around Site. • Number of drivers with licenses.	LECC	Weekly	LECC Maintenance and operation budget

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
			reflective for visibility during the night • Engage flag personnel when necessary to direct traffic		• Number of roadworthy vehicles • Number of Flag personnel engaged • Number of OH&S audits to be conducted.			
	Soil/groundwater contamination due to fuel, oil, paints and coating as a result of spillage	L	• Containment of spills • Implement management controls (Procedures, inspections, communication and trainings)	L	• No soil contamination evident on Site. • No vegetation or water contamination on Site.	Contractor Project Engineer	Weekly	LECC Maintenance and operation budget

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
			• Paints and solvents will be stored on an impervious ground and the area will be constructed as a spill tray to avoid the spread of accidental spills		• Spills cleaned up immediately.			
	Major accidents related to fires and explosions	L	• Define fire zones and equip them with firefighting equipment • Use of engineering controls	L	• No loss of land and other assets due to fire • No reported fires on Site or in the surrounding area.	LECC	Weekly	LECC Maintenance and operation budget

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
			(automatic alarms) • Installation of smoke detectors • Safe ventilation for storage of volatile materials shall be provided		• No complaints received from the public			
	Worksite accidents from operations and maintenance crew activities such as servicing of equipment, changing of batteries etc.	L	• Vehicles are inspected on daily basis before commencement of works • Use of warning signs • Non-consumption of alcoholic	L	• No vehicle collisions due to construction activities. • Adequate signage erected in and around Site.	LECC	Weekly	LECC Maintenance and operation budget

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
			beverages on work site • Well stocked First aid kit will always be available within the site • Flag personnel will be deployed to guide traffic where necessary • Informatory and warning signages provided will be retro-reflective for visibility in the night		• Number of drivers licensed. • Number of roadworthy vehicles • Number of flag personnel engaged • Number of OH&S audits to be conducted.			

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
			• All vehicles will be parked in designated parking areas					
	Threat of Naturally Occurring Radioactive Material (NORM) to the environment (Soil, water and air)	M	• Regular maintenance or servicing of production equipment • Regular NORM monitoring to detect material and equipment with NORM • Carrying out personal dosimetry for external radiation exposure to confirm that	L	• Inspection Report on NORM • Register of Proper PPE issued and used • Records on radioactive dust • Records on Sampling and analysis of waste streams to confirm that they remain	LECC	Monthly	LECC Maintenance and operation budget

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
			exposures fall into range expected from external radiation surveillance monitoring • Measuring airborne radioactive dust during maintenance activities to check that the assumptions upon which respirator selections were made are accurate – or if respirators are needed		within regulatory limits			

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
			• Sampling and analysis of waste streams to confirm that they remain within regulatory limits • Materials used in NORM control procedures, e.g. gloves, disposable overalls will be disposed with hazardous waste					
	Thermal effects due to exposure to EMF	M	• Prepare and implement an	L	• EMF safety program in place and	LECC	Monthly	LECC Maintenance and

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
			EMF safety program • Training of workers in the identification of occupational EMF levels and hazards • Establishment and identification of safety zones to differentiate between work areas with expected elevated EMF levels compared to those acceptable for		proof of implementation • EMF levels Records • Records of Training of workers in the identification of occupational EMF levels and hazards			operation budget

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
			public exposure, limiting access to properly trained personnel					
	Waste Management Potential effects will be of aesthetics and nuisance of waste shall mainly come from discarded packaging materials such as scrap metals, empty plastic containers, poor disposal methods can lead to environmental problems due to their non-biodegradable nature. Most of the packaging waste is	L	• Toilets must be available on site • The site remains clean, well maintained, and free of hazards, with the thoughtful location of litter bins • Proposal disposal of solid waste to	L	• No litter or large amounts of construction waste seen on site. • Number of Employees aware of importance of recycling waste. • Number of marked bins	LECC	Weekly	LECC Maintenance and operation budget

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
	expected to be reused.		appropriate waste disposal facility • Storage of lubricants, fuels and other hydrocarbons in self-contained enclosures • Sanitation facilities to avoid the release of wastewater and sewage to the environment • Reuse waste materials wherever		for recyclable materials. • Bunded waste collection facility erected on Site. • Bins and skips emptied regularly. • Waste management plan implemented on Site. • Number of Ablution facilities for men and			

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
			possible and use designated disposal sites • Minimum waste is generated • Used oil and lubricants will be recovered and reused or removed from site in full compliance with national regulatory frameworks • Oil waste, debris and/or other waste materials will not be burned		women provided. • Records show regular cleaning and waste disposal at a licensed site • All toilets are removed once construction is complete in each work area			

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
			• Safety measures are followed while disposing of wastes					
	Stealing and Vandalization of fibre cables	H	• Daily security reports shall be reviewed • Engage security for fibre protection • A liaison to foster a partnership with community to guarantee security for the project is established and sustained	L	• Secure and adequate fencing and access control • 24-hour security evident onsite	LECC	Daily	LECC Maintenance and operation budget

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
	Hazardous waste from oils spills, and petrol spills	M	• Good housekeeping will be instituted and maintained • Hazardous waste will be collected, stored and disposed off at an approved disposal site • Proper PPE must be used for personnel handling hazardous waste	L	• Up to date inventory of hazardous materials stored on site. • Storage area contains bunds and signage as required. • Storage areas to be locked at all times. • MSDS sheets known to supervisory staff and present at the storage sites	LECC	Weekly	LECC Maintenance and operation budget

Project Activity	Description of Impacts	Rating before Mitigation	Mitigation/Control Measures	Rating after Mitigation	Performance Indicators	Responsibility	Monitoring Frequency	Costs (USD)
					• Number of Hazardous materials awareness and basic spill response training for emergency response personnel.			

11.0 HEALTH AND SAFETY

The Contractor shall use his best endeavour to ensure reasonably practicable to the satisfaction of the Project Engineer, the health, safety and welfare at work of his personnel, including those of subcontractors, and of all community within the project area.

The Contractor's responsibilities will include:

- Provision and maintenance of safe and properly illuminated Contractor's Equipment
- Provision of protective clothing/Equipment
- Establishment of first aid stations, staffed and equipped to provide information, instructions, training and supervision on all aspects of health and safety on site
- Appointing Health and Safety Officer as one of his senior staff who shall have specific knowledge of safety regulations and have had experience of safety precautions on similar works and who shall advise the Contractor on all aspects of health and safety
- Provision and maintenance of safe access to all work areas on site
- Provision of adequate sanitary facilities and maintenance of these in a clean and hygienic state for use by all persons employed by the Client, Project Engineer, Contractor and Subcontractors
- Measures to control flies and pests
- Reporting details of any accidents and incidences (**Appendix 4**) to the Project Engineer as soon as possible; and
- Reasonable prevention of non-site personnel from entering the work areas.

11.1 Baseline Risk Assessment

The baseline risk assessment outlined in **Table 13** below indicates the various **activities** to be conducted throughout all phases of the project lifecycle, **potential hazards** attached to these activities, assessment of **probability and consequence** of those hazards or incidents and **recommendations** on corrective and remedial/preventative measures to be implemented.

The proposed safety procedures are based on existing practices and standards in Occupational Safety and Health Act 2024 of Lesotho and International Best Practices.

Table 14 Baseline Risk Assessment

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
Pre-Construction Phase						
1	**Earthworks by means of Heavy Mobile Equipment**	Collision between Mobile Equipment and Light Vehicles Crushing or striking by heavy mobile equipment or falling objects. Cutting or stabbing by sharp objects. Heavy Mobile equipment overturn due to overload/un-balanced loads.	Disastrous	likely	Low	• Ensure competent operators. • Contractor emergency management plan • Contractor's management procedure on environmental control. • Dedicated pedestrian walkways. • Restricted/barricaded work areas • Drug and alcohol testing. • Man-machine interface to be implemented • High visibility PPE
		Heavy Mobile Equipment not in a safe and serviceable condition High pressure fluids Burns from hot or cold surfaces. Slips, trips and falls.	Serious	Likely	Low	• Inspection by competent inspector prior to site mobilization. • Maintenance records/inspections
		Environmental hazards including Dust, Noise, Vibration and exhaust fume exposure;	Serious	Likely	Low	• Contractor management procedures on extreme temperature control measures and fatigue management. • Monitoring noise levels and implementation of hearing conservation programme.

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
2	**Loading/Off-loading activities**	Loads falling; Crushing or striking by moving or falling objects.	Disastrous	Likely	Low	• Ensure crane operator and rigger competency, including random verifications. • Implement safety provisions set out in Occupational Safety and Health Act 2024 • Lifting studies done when necessary. Ground stability and placement of outriggers considered. • Inspection by competent inspector prior to site mobilization. • Equipment selection by competent person, load tests and inspections. • Consideration of windy conditions in mobile crane operation. • Task specific risk assessment to be done, ground stability and placement of loads. • Man-machine interface to be implemented • High visibility PPE
		Falling from top of containers Falling from ladders; Pinch points	Disastrous	Likely	Low	• Fall Protection Plan implemented and communicated
3	**Excavations**	Unprotected excavations Unsafe access and egress into and from excavations Loose objects on the side walls of excavations	Critical	Likely	Low	• Notification of intention of carrying out excavation work • Warning notices • Risk assessment and safe work procedure • Adequate/safe access • Adequate communication

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
						• Ensure competent, trained personnel are used. • Restrict unauthorised entry. • Dedicated pedestrian walkways where practical / communicate moving equipment right of way • Adequate barricading of excavations
		Collapsing excavations Unstable excavation walls (even after inclement weather);	Disastrous	Unlikely	Low	• Inspections of excavations by competent and appointed persons to ensure compliance, including checks pertaining to inclement weather. • Shoring and battering done as appropriate • Task specific risk assessment to be done • Work stop procedures in cases such as signs of flooding or deterioration in ground stability.
		Underground services being struck/damaged;	Disastrous	Unlikely	Low	• Services Detection • Geotechnical information • Appropriate approval/permits.
		Operator misconduct, poor visibility conditions (fog, rain, windows, blind spots) or mechanical failure of machines (brakes, steering, park brake, leaks, exc.) Machines not in safe and serviceable condition;	Disastrous	Unlikely	Low	• Competent and certified Excavator/TLB operators. • Machines maintenance records and inspections
4	**Ground testing**	Instability of ground causing collapses/landslides/displacement	Serious	Unlikely	Low	• Appropriate surveys/investigations

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
		Flooding/ groundwater inflow				• Method statements, risk assessment and safe work procedures
5	**Rotating and moving equipment activities**	Moving parts (Being trapped, entangled, or struck by machinery parts)	Critical	Likely	Low	• Machine design and guarding • Disconnecting, isolating and de-energizing procedures • Routine service and checks • Implement safety provisions set out in Sixth Schedule of Labour Code
6	**Mobile equipment activities**	Collision between mobile equipment and light vehicles Crushing or striking by moving or falling objects Cutting or stabbing by sharp objects Heavy mobile equipment overturns due to overload/un-balanced loads etc.	Disastrous	Unlikely	Low	• Ensure competent operators. • Contractor emergency management plan • Dedicated pedestrian walkways. • Traffic management plans • Drug and alcohol testing. • Inspection by competent inspector prior to site mobilization. • Task specific risk assessment and DSTIs
		Electrical shock or burns Hot or cold surfaces causing burns High pressure fluids Slips, trips and falls	Serious	Unlikely	Low	• Inspection by competent inspector prior to site mobilization. • Maintenance records/inspections
7	**General operations**	Dust generated from moving vehicles, mobile plant and heavy machinery.	Significant	Likely	Low	• Exposure monitoring and medical surveillance. • Implement work practices to minimize release of dust

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
						• Effective ventilation systems • Dust control or suppression • Approved respiratory protection
		Chemical airborne contaminants including diesel particulates, exhaust fumes	Critical	Unlikely	Low	• Air quality tests and risk assessment • Safe work procedure including permit to work • Warning signs • Medical surveillance. • Training • Implement safety provisions set out in OSHA 2024 • Effective ventilation. • Segregation • Readily available qualified first aider
		Noise exposure	Serious	Likely	Low	• Occupational hygiene monitoring and medical surveillance. • Hearing conservation programme. • Acoustic insulating materials or isolation • Limit duration of noise exposure • Hearing Protection Devices
		Ergonomic stressors (awkward work positions, manual handling etc.)	Serious	Likely	Moderate	• Adequate facility and workstation design • Mechanical assists • Appropriate tool and machinery design • Administrative control measures (rest and stretch breaks, rotation) • Quality control and maintenance programs

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
						• Task risk assessment. • Correct lifting and handling practices and ergonomic awareness.
		Whole body and hand arm vibration	Serious	Unlikely	Moderate	• Vibration dampening pads or devices • Limit duration of exposure • Well maintained equipment and mobile plant. • Exposure Monitoring
		Biological hazards: Contaminated water Animals/insect bites	Disastrous	Likely	Moderate	• Risk Assessment and safe work procedures • Minimize release of biological agents into the working environment. • Limit number of employees exposed • Awareness training • Qualified first aider • Implement safety provisions set out in OSHA 2024
Construction Phase						
1.	**Vegetation Clearance**	Biological hazards such as Domestic waste, poisonous plants/animals/insects	Disastrous	likely	Low	• Contractor emergency management plan • Contractor's management procedure on environmental control. • Awareness Training • On site dedicated first aid services.
		Environmental conditions including dust, extreme temperatures	Serious	Likely	Low	• Employee awareness training and dedicated, trained snake handler. • Contractor management procedures on extreme temperature control measures and fatigue management.

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
		Manual handling and repetitive activities				
		Mobile plant/equipment Tool, equipment/machinery	Disastrous	Likely	Low	• Competent Operators • Dedicated pedestrian and tourists walkways. • Drug and alcohol testing. • Inspections by competent inspector prior to site mobilization
2.	**Earthworks by means of Heavy Mobile Equipment**	Collision between mobile equipment and light vehicles Crushing or striking by heavy mobile equipment or falling objects. Cutting or stabbing by sharp objects Heavy mobile equipment overturns due to overload/un-balanced loads.	Disastrous	Likely	Low	• Ensure competent operators. • Contractor emergency management plan • Contractor's management procedure on environmental control. • Dedicated pedestrian walkways. • Restricted/barricaded work areas • Drug and alcohol testing. • Man-machine interface to be implemented • High visibility PPE
		Heavy mobile equipment not in a safe and serviceable condition High pressure fluids Burns from hot or cold surfaces Slips, trips and falls	Serious	Likely	High	• Inspection by competent inspector prior to site mobilization. • Maintenance records/inspections
		Environmental Hazards including Dust, Noise, Vibration and exhaust fume Exposure;	Serious	Likely	Low	• Contractor management procedures on extreme temperature control measures and fatigue management.

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
						• Monitoring noise levels and implementation of hearing conservation programme.
3.	**Loading/Off-loading activities**	Loads falling Crushing or striking by moving or falling objects.	Disastrous	Likely	Moderate	• Ensure crane operator and rigger competency, including random verifications. • Lifting studies done when necessary. Ground stability and placement of outriggers considered. • Inspection by competent inspector prior to site mobilization. • Equipment selection by competent person, load tests and inspections. • Consideration of windy conditions in mobile crane operation. • Task specific risk assessment to be done, ground stability and placement of loads. • Man-machine interface to be implemented • High visibility PPE • Implement safety provisions set out in Sixth Schedule of Labour Code
		Falling from top of containers Falling from ladders; Pinch Points	Disastrous	Likely	Moderate	• Fall Protection Plan implemented and communicated
4.	**Site Access (Including driving on site)**	Congested traffic Pedestrians/Animals along the road Contractor team members	Serious	Likely	Moderate	• Access control and permits • Designated entrances • Contractor's site layout requirements and traffic management

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
		Unsafe road conditions (wet, loose sand, potholes) Rubble heaps Brick stacks Uneven surfaces				• Institute effective man-machine interface control • Housekeeping • Drug and alcohol testing • Fatigue management
5.	**Fencing**	Pinch points - wire cutters, pliers etc. Sharp edges/wires Uneven surfaces Unsafe tools and equipment Collapsing fence	Serious	Unlikely	Low	• Contractor management procedures on fatigue management. • Display clear visible readable warning signage • Contractor's method statement on fencing. • Apply good housekeeping • Suitable PPE
6.	**Excavation and Trenching**	Unprotected excavations Unsafe access and egress into and from excavations Loose Objects on the side walls of excavations	Critical	Likely	Low	• Notification of intention of carrying out excavation work • Warning notices • Risk assessment and safe work procedure • Adequate/safe access • Adequate communication • Ensure competent, trained personnel are used. • Restrict unauthorised entry. • Dedicated pedestrian walkways where practical / communicate moving equipment right of way • Adequate barricading of excavations
		Collapsing excavations	Disastrous	Unlikely	Low	• Inspections of excavations by competent and appointed persons to

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
		Unstable excavation walls (even after inclement weather)				ensure compliance, including checks pertaining to inclement weather. • Shoring and battering done as appropriate • Task specific risk assessment to be done • Work stop procedures in cases such as signs of flooding or deterioration in ground stability.
		Underground services being struck/damaged;	Disastrous	Unlikely	Low	• Services detection • Geotechnical information • Appropriate approval/permits.
		Operator misconduct, poor visibility conditions (fog, rain, windows, blind spots) or mechanical failure of machines (brakes, steering, park brake, leaks, exc.) Machines not in safe and serviceable condition;	Disastrous	Unlikely	Low	• Competent and certified Excavator/TLB operators. • Machines maintenance records and inspections
7.	**Working at heights (including roof work)**	Falling from elevated positions due to moving from one surface to another at heights; uncovered holes and openings; open edges not barricaded; uneven surfaces; moving surfaces; poor lighting; unsuitable footwear; slippery surfaces; wind, rain or ice - walking on ply decks; incorrect use of fall arrest equipment.	Disastrous	Likely	High	• Hole covers/guard rails according to specifications • Compilation and implementation of fall protection and fall rescue plans • Task specific risk assessment and DSTIs. • Consideration of inclement weather and lightning in conducting activities. • Medical surveillance to confirm fitness to work

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
						• Preference to use of passive fall prevention devices such as scaffolds / elevating work platforms opposed to ladders • Implement a fall injury prevention system such as a safety net / fall arrest harness. • Adequate barricading and edge protection • Inspections by competent inspectors • Brittle roof material in accordance with prescribed national standards.
		Overhead activities/ being struck by falling objects	Critical	Likely	High	• Use of tool lanyard when working at heights • Safety nets • Barricaded area below
8.	**Scaffolding (erecting, modifications and dismantling)**	Collapsing scaffold structures due to substandard structure, overloading, accidental dislodging by moving vehicles etc.	Disastrous	Likely	High	• Competent persons • Scaffold erected and used according to First Schedule • Approved designs • Inspections by competent inspectors • Equipment maintenance record available • Task specific risk assessment to be done, ground stability and placement of loads.
		Objects, tools and equipment falling from heights	Critical	Likely	High	• Use of tool lanyard when working at heights • Safety nets

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
						• Barricaded area below
		Personnel falling from heights	Disastrous	Likely	High	• Fall Protection Plan implemented and communicated • Medical Surveillance programme for working as heights.
		Ergonomic factors such as manual handling/lifting and overextension Pinch points/substandard hand tools	Serious	Likely	High	• Ergonomic Awareness training
9.	**Steel fixing and Structural Steel Works**	Pinch points - wire cutters, pliers etc. Sharp edges/wires Substandard electrical tools (e.g. portable electrical grinders, generators) being used.	Serious	Likely	High	• Gloves must be worn when handling or working with equipment, materials or substances with the potential to cause injury or illness. • Equipment inspections to ensure correct and safe tools/ equipment for the job. • Verified competency training for any person operating electrically driven tools and equipment. • Task specific risk assessment to be in place and communicated.
10.	**Electrical Installations**	Contact with live electrical conductors	Disastrous	Likely	High	• Ensure certified electricians and competent personnel conducting electrical installations/service/maintenance. • Inspections of electrical equipment by competent persons. • Apply to switchboard and electrical outlet box specifications • Approved lighting systems • Guarding of lamps

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
						• Earth leakage protection • Electrical Inspections • H&S Permit to Work • Isolation and Lockout Procedure competent and appointed person to control keys to live electrical panels and keys. • Task specific risk assessment with safe work procedures to be in place and communicated. • Labelling/Warning signs • Double insulation/grounding • Safety inspections/checks • "No Approach" zones around or under high voltage power lines • Identification of existing services prior to excavations
		Fire during commissioning of incorrectly constructed installations;	Critical	Unlikely	High	• Ensure certified electricians and competent personnel conducting electrical installations/service/maintenance. • Proper Firefighting equipment • Implement safety provisions set out in OSHA 2024
		Substandard electrical tools (e.g. portable electrical grinders, drills) being used)	Serious	Likely	High	• Portable equipment conforms to requirements of competent authority • Safe and proper portable electrical tools • Inspections of electrical equipment by competent persons. • Labelling/Warning signs

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
						• Double insulation/grounding
11.	**Hot Work, Cutting and Welding**	Sparks, molten metal etc.	Significant	Likely	Moderate	• Ensure competent operators • Work area screening/demarcation • Prescribed PPE (Non-combustible or flameproof shields)
		Exposure to radiation, fumes, heat	Serious	Likely	Moderate	• Adequate ventilation • Welding fume assessment • Adequate screening in case of arc welding • Inspections by competent inspectors • Continuous supervision • Prescribed PPE (Non-combustible or flameproof shields) • Adequate ventilation • Adequate screening in case of arc welding • Inspections by competent inspectors • Continuous supervision • Shield of radiation sources
12.	**Pouring Concrete**	Engulfment/Collapses	Disastrous	Unlikely	Medium	• Ensure qualified truck's operator will place the chute and run the mixer. • Concrete mix preparation to the design and specific strength required including concrete sampling. • Proper moisture content according to the design specifications.
		Machinery such as conveyors and hydraulic concrete pumps	Disastrous	Unlikely	Low	• Ensure competent crane operators. • Task specific risk assessment and DSTIs

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
		Ready-mix truck displacement Being struck by or caught between chute/concrete bucket and other objects.				• Continuous supervision • Inspections by competent inspectors • Qualified flagmen to ensure a clear path to the work zone.
		Slipping tripping, falling In contact with concrete – concrete burns (skin, eyes etc.) Tools such as sharp-edged trowels, hammers, chisels	Serious	Likely	Medium	• Firm walkway and stable ramp with edge protection. • Training on task specific safe work procedures • Proper PPE • Safe and proper hand tools
		Ergonomic hazards including prolonged, awkward body positions. Noise/silica exposure	Serious	Likely	High	• Correct lifting and handling practices and ergonomic awareness. • Appropriate PPE including waterproof gloves • Silica and Noise exposure monitoring
13.	**Setting/placing concrete forms**	Splinters from wood forms Sharp edges from metal or plastic forms Stakes, screws or nails used for attaching forms Manual handling	Serious	Likely	High	• Safe and proper hand tools • Correct lifting and handling practices and ergonomic awareness. • Proper PPE
14.	**Crane Operations**	Mobile cranes not in safe and serviceable condition Use of mobile cranes in high wind conditions	Disastrous	Likely	Medium	• Ensure crane operator and rigger competency, including random verifications. • Inspection by competent inspector prior to site mobilization.

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
		Crushing or striking by moving or falling objects Cutting or stabbing by sharp objects Lifting equipment overturn due to overload/un-balanced loads etc High pressure fluids Electrical shock or burns Sips, trips and falls.				• Consideration of windy conditions in mobile crane operation. • Task specific risk assessment to be done, ground stability and placement of loads. • Implement safety provisions set out in Sixth Schedule of Labour Code
		Lifting operations: Loads falling Entanglement of lifting slings or other loose items in moving parts.	Disastrous	Likely	Medium	• Equipment selection by competent person, load tests and inspections. • Lifting studies done when necessary. Ground stability and placement of outriggers considered. • Drop zones to be demarcated • Lifting permits • Guide ropes to be use for lifting or loading of items or materials
15.	**Brickwork**	Incorrect manual handling techniques (Lifting, carrying, pushing, pulling) Ergonomics (Bending, twisting, prolonged, frequent, repetitive movements)	Serious	Likely	Medium	• Correct lifting and handling practices and ergonomic awareness. • Plan lifting operations and if the assessed risk is too great, use mechanical aids or seek assistance.

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
		Substandard hand tools being used				
		Personnel falling from scaffolding/ladders; or overloading scaffold with bricks/cement	Disastrous	Likely	Medium	• Fall Protection Plan implemented. • Ensure personnel performing elevated work are competent/trained in use of fall protection systems. • Medical surveillance on personnel working at heights. • Planned Task Observations conducted on personnel working at heights. • Daily pre-use inspections done by competent Supervisor of his work crew. • Task specific risk assessment and DSTIs • Continuous supervision in place.
16.	**Mobile equipment activities**	Collision between Mobile Equipment and Light Vehicles Crushing or striking by moving or falling objects Cutting or stabbing by sharp objects Heavy Mobile equipment overturns due to overload/un-balanced loads etc.	Disastrous	Likely	Moderate	• Ensure competent operators/supervision • Contractor emergency management plan • Dedicated pedestrian walkways. • Traffic management plans • Drug and alcohol testing. • Inspection by competent inspector prior to site mobilization. • Task specific risk assessment and DSTIs
		Environmental Hazards including Dust, Noise, Vibration and exhaust fume Exposure;	Serious	Likely	Medium	• Contractor's management procedure on environmental control.

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
						• Contractor management procedures on extreme temperature control measures and fatigue management. • Monitoring noise levels and implementation of hearing conservation programme.
17.	**Work from local labour**	Unexperienced, incompetent workers. Wage disputes Community unrests/violence due to unfair worker selection Language barriers	Serious	Likely	High	• Personnel Selection, competency and training management • Contractual requirements • Access Control • Management of change • Induction, orientation, task specific training/method statements and safe work procedures • Continuous supervision • Medical surveillance
18.	**Transportation of materials**	Fatigue due to lengthy driving periods/driving at night Driving under bad weather/ bad road conditions Overturning of heavily loaded truck due to mechanical failure, difficult road conditions and/or excessive speed, head-on collisions, etc. Insecure load shifting/falling	Disastrous	Likely	Moderate	• Fatigue management plan • Safe lifting and moving techniques for heavy or awkward loads; mechanical aids to assist in lifting • Secure loads • Fire-fighting equipment • Means of communication • Implement safety provisions set out in OSHA 2024

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
		Ergonomic hazards such as physical overexertion while changing tires, moving heavy pieces of cargo, fastening ropes etc. Exposure to vibration	Serious	Likely	Moderate	• Ergonomically designed driver's seat; interrupt driving periodically for rest and exercises • Limit the material load to a safe height
19.	**General construction activities**	Ergonomic stressors such as manual handling and lifting, awkward work positions.	Serious	Likely	Moderate	• Adequate facility and workstation design • Mechanical assists • Appropriate tool and machinery design • Administrative control measures (rest and stretch breaks, rotation) • Quality control and maintenance programs • Task risk assessment. • Correct lifting and handling practices and ergonomic awareness.
		Slips, trips and falls	Significant	Likely	Low	• Cleanliness • Adequate storage areas • Warning signs • Adequate barricading and hole covering • Adequate illumination
		Noise	Serious	Likely	Low	• Occupational hygiene monitoring and medical surveillance. • Hearing conservation programme. • Acoustic insulating materials or isolation • Limit duration of noise exposure

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
						• Hearing Protection Devices
		Dust	Significant	Likely	Low	• Exposure monitoring and medical surveillance. • Implement work practices to minimize release of dust • Effective ventilation systems
		Substandard illumination	Significant	Likely	Moderate	• Implement safety provisions set out in OSHA 2024 • Eliminate glare • Minimize and control optical radiation • Proper temporary lighting design to not interfere with other activities. • Sufficient maintenance, replacement and disposal programme. • Regular illumination measurements to match type of work to be done.
		Overhead activities/ being struck by falling objects;	Critical	Likely	High	• Use of tool lanyard when working at heights • Safety nets • Barricaded area below

Item No	Description of activity/Area/Short Risk Name	Typical Hazards List top 10	Consequences *What could happen*	Likelihood *What is the probability of it happening*	Risk Rating *Refer to risk matrix (Table 15)*	Recommended Preventative and Control Measures
20.	**Adverse Weather**	Collision between Mobile Equipment and Light Vehicles Slips, trips and falls Heat – Dehydration Cold – Persons may fall ill Wind – dust inhalation – fall from elevated positions Rain – slippery surfaces – injuries Snow – freezing conditions	Critical	Likely	High	• Ensure competent operators. • Contractor emergency management plan • Ensure safe adequate drinking water • Use of PPE –wind breakers, gloves, dust masks • Dust suppression • Hook up at heights • Mind your step in rainy conditions • Stop working on rainy days

11.2 Risk Rating Matrix

The probability and consequence of incidents were assessed using to the risk matrix in

Table 15 Risk Rating Matrix

14 below:

Table 15 Risk Rating Matrix

RISK RATING MATRIX					
Most Likely Consequence	**Likelihood**				
	Very likely to occur	**Good chance to occur**	**Likely to occur**	**Unlikely to occur**	**Very unlikely to occur**
Disastrous	Extreme	Extreme	Extreme	Extreme	High
Critical	Extreme	Extreme	Extreme	High	High
Serious	Extreme	High	High	Moderate	Moderate
Significant	High	High	Moderate	Low	Low
Minor	Moderate	Moderate	Low	Low	Low

Consequence	**Example**	**Likelihood**	**Example**
Disastrous	Single or multiple fatality	**Very likely to occur**	Is expected to occur in most circumstances (i.e. could occur once per week)
Critical	Disabling injury of illness (i.e. amputation and/or permanent loss of bodily function, or any kind of permanent health impact	**Good chance to occur**	Will probably occur in most circumstances (i.e. could occur once per month)
Serious	Any Lost Time Injury (LTI) resulting in one or more complete days off work or any Restricted Workday Injury (RWI) resulting in one or more than 1 week off normal duties	**Likely to occur**	Might occur at some time (i.e. could occur once per year)
Significant	A Medical Treatment Injury (MTI) or a restricted workday injury (RWI) (i.e. any injury resulting in less than 1 week on alternate duties	**Unlikely to occur**	Could occur at some time (i.e. could occur in 10 years)

Minor	Minor First Aid Injury (FTI) or an injury not requiring treatment	**Very unlikely to occur**	May occur only in exceptional circumstances (i.e. could occur once)

RISK CATEGORY	
Rating	**Response**
Extreme Risk	Cease the work immediately and notify the most senior line manager responsible for the work. Immediate action required. Do not proceed with any work until confirmed safe to do so and recommencement has been authorized by the senior line manager or appropriately qualified and competent person.
High Risk	Cease the work immediately and notify the most senior line manager responsible for the work. Immediate action is required. Do not proceed with any work until confirmed safe to do and recommencement has been authorized by the senior line manager or appropriately qualified and competent person.
Moderate Risk	Notify the Project Leader or Manager and identify control actions and action dates. Proceed with work only if confirmed safe to do so.
Low Risk	Manage by routine procedures.

HIERARCHY OF CONTROL		
You should attempt to remove or control the hazard in the following order. If the hazard cannot be eliminated properly then apply any one or combination controls 2-5 in descending order until the work can be done safely		
Option 1	**1. Eliminate**	Eliminate the hazard at its source (i.e. complete removal or termination of whatever is generating the hazard. Could be a process, work method, equipment, material or substance etc.)
Option 2 (Control the hazard through 1 or a combination of these controls)	**2. Substitute**	Replace whatever is generating the hazard with a non-hazardous or less hazardous process, work method, equipment, material or substance etc.
	3. Engineer /Isolate	Redesign or modify whatever is generating the hazard to control the effects of the hazard or prevent people from coming into contact with it. This includes isolating the hazard to prevent access. Engineer and redesign includes the use of barriers, guards, enclosures, engineering control systems and protective devices, redesign layouts and work processes, design of new equipment to handle the hazardous source, etc.
	4. Administrative	Administrative controls include the use of procedures, training and information, signage, hours of work etc.
	5. Personal Protective Equipment (PPE)	Use appropriately designed and properly fitting personal protective equipment (PPE) where other controls are not practicable. (This is not a primary control. It is a back-up control and should be considered only as a support to the other controls).

12.0 MANAGEMENT DURING THE DEFECTS LIABILITY PERIOD

During the defect's liability period, activities include the maintenance and aftercare of final rehabilitated areas. In this regard, frequent visual observations should be undertaken to confirm if vegetation has re-established, alien species have been established and if any erosion gullies have developed. In the event that vegetation has not re-established, alien species have been established, and erosion gullies have developed, remedial action must be taken.

Therefore, the Project Engineer must monitor and control any alien invasive plant species until area is adequately revegetated with indigenous species and in a stable condition.

13.0 CONCLUSION AND RECOMMENDATIONS

13.1 Conclusion

Fiber internet infrastructure that will result from the implementation of LEMOFI Project will lay groundwork for the development of community and government services, thus, telecommuting, remote learning and provision of a reliable platform for essential services. Therefore, LEMOFI Project will have benefits to the project communities as well as the entire nation. This project will definitely unlock socio-economic development and improve livelihoods. The Project will significantly strengthen Lesotho's digital infrastructure, enabling:

- Improved access to government and community services;
- Enhanced opportunities for remote work and distance education;
- A more reliable platform for the delivery of essential services such as health and education.

Through the assessment and evaluation of all potential environmental and social impacts of the proposed LEMOFI, it is concluded that, through effective implementation of the mitigation measures, stipulated in the ESMP, the probable risk of this project is very minimal and can easily be managed and mitigated.

Preliminary Budget for the implementation of ESMP has been calculated amounting to **USD 258,146.38** which will be revised by the Contractor during implementation.

There is also, an overwhelming support for the project by all stakeholders. It is for this reason that the project needs to be implemented as soon as possible.

13.2 Recommendation

It is advised that the Project proceed without delay, with continued stakeholder engagement and **strict adherence to the ESMP** to ensure sustainability and regulatory compliance.

14.0 APPENDIXES

APPENDIX 1
CHANCE FINDS PROCEDURES

CHANCE FIND PROCEDURES

1.1 PURPOSE

Areas of the proposed development activity are subject to heritage survey and assessment at the planning stage. These surveys are based on surface indications alone, and it is therefore possible that sites or items of heritage significance will be found in the course of development work. The procedure set out here covers the reporting and management of such finds.

1.2 SCOPE

The “chance finds” procedure covers the actions to be taken from the discovery of a heritage site or item to its investigation and assessment by a trained archaeologist or other appropriately qualified person.

1.3 COMPLIANCE

The “chance finds” procedure is intended to ensure compliance with relevant provisions of the national legislative frameworks.

Act	Provision	Reference
Environment Act, 2008 (Act No. 10 of 2008)	Provides for protection of Natural Heritage Sites	Act No. 10 of 2008 -71(i)
The Historical Monuments, Relics, Fauna and Flora, 1967 (Act No. 41 of 1967)	Provide for the preservation and protection of natural and historical monuments, relics. antiques, fauna and flora and for connected matters,	Act No. 41 of 1967

1.4 RESPONSIBILITY

Environmental Control Officer: To provide training to the contractor on the procedure and to advice of any chance find on site.

Project Engineer: To exercise due caution if archaeological remains are found

Contractor: To secure site and advise management timorously

Archaeologist: To inspect, identify, advice management, and recover remains

1.5 PROCEDURE

MITIGATION/MONITORING ACTION	RESPONSIBILITY	SCHEDULE

Should a heritage site or archaeological site be uncovered or discovered during the construction phase of the project, the "change find" procedure should be applied. The details of this procedure are highlighted below:		
• If operating machinery or equipment: stop work • Identify the site with flag tape • Determine GPS position if possible • Report findings to foreman	Operator or reporting person	
• Report findings, site location and actions taken to superintendent • Cease any works in immediate vicinity	Site Agent/Foreman	
• Visit site and determine whether work can proceed without damage to findings • Determine and mark exclusion boundary • Site location and details to be documented for field confirmation by archaeologist	Environment and Social Safeguards Manager	
• Inspect site and confirm addition to project Documentation • Advise the Ministry of Environment and Forestry- Department of Environment and request written permission to remove findings from work area • Recovery, packaging and labelling of findings for transfer to National Museum	Environment and Social Safeguards Manager	
• Should human remains be found, the following actions will be required: - Apply the chance find procedure as described above. - Schedule a field inspection with an archaeologist to confirm that remains are human. - Advise and liaise with the Department of Environment and Police on necessary exhumation procedures - Remains will be recovered and removed following the exhumation procedures	Environment and Social Safeguards Manager	

APPENDIX 2

ENVIRONMENTAL RULES FOR CIVIL WORKS CONTRACTORS

ENVIRONMENTAL RULES FOR CIVIL WORKS CONTRACTORS

1. General Applicability of the Environmental Rules and ESMP

These general environmental guidelines apply to any work to be undertaken under the Lesotho Metropolitan Fiber Distribution Network (LEMOFI). All work must be conducted in accordance with the Lesotho Legislation and Best Practices as well as Health and Safety Guidelines (EHS). The Construction and Demolition guidance in the General Guidelines is particularly pertinent. For certain work sites entailing specific environmental and/or social issues, an Environmental Impact Assessment (ESIA), including an Environmental and Social Management Plan (ESMP), has been prepared to address the above-mentioned specific issues in addition to these general environmental guidelines. In addition to these general Environmental Guidelines, the Contractor shall therefore comply with any specific ESMP for the works s/he is responsible for.

The Contractor shall be informed by Project Engineer about such an ESMP for certain work sites and prepare his/her work strategy and plan to fully take into account relevant provisions of that ESMP. If the Contractor fails to implement the approved ESMP after written instruction by the works supervisor to fulfil his/her obligation within the requested time, LECC reserves the right to arrange for execution of the missing action by a third party on account of the Contractor. Notwithstanding the Contractor's obligation under the above clause, the Contractor shall implement all measures necessary to avoid undesirable adverse environmental and social impacts wherever possible, restore work sites to acceptable standards, and abide by any environmental performance requirements specified in an ESMP where such an ESMP applies.

These Environmental Rules, as well as any specific ESMP, apply to the Contractor. They also apply to any sub-contractors present on Program work sites at the request of the Contractor with permission from the Client.

2. General Environmental Protection Measures

In general, environmental protection measures to be taken at any work site shall include but not be limited to:

(a) Minimize the effect of dust on the environment resulting from earth mixing sites, vibrating equipment, construction related traffic on temporary or existing access roads, etc. to ensure safety, health and the protection of workers and communities living in the vicinity of work sites and access roads.

(b) Ensure that noise levels emanating from machinery, vehicles and noisy construction activities (e.g. excavation, blasting) comply with legislation and are generally kept at a minimum for the safety, health and protection of workers within the vicinity of high noise levels and nearby communities.

(c) Ensure that existing water flow regimes in rivers, streams and other natural or irrigation channels are maintained and/or re-established where they are disrupted due to works being carried out.

(d) Prevent any construction-generated substance, including bitumen, oils, lubricants and wastewater used or produced during the execution of works, from entering into rivers, streams, irrigation channels and other natural water bodies/reservoirs.

(e) Avoid or minimize the occurrence of standing water in holes, trenches, borrow areas, etc.

(f) Prevent and minimize the impacts of quarrying, earth borrowing, piling and building of temporary construction camps and access roads on the biophysical environment including protected areas and arable lands; local communities and their settlements. Restore/rehabilitate all sites to acceptable standards.

(g) Upon discovery of graves, cemeteries, cultural sites of any kind, including ancient heritage, relics or anything that might or believed to be of archaeological or historical importance during the execution of works, immediately report such findings to the Client so that the Ministry in charge of Culture may be expeditiously contacted for fulfilment of the measures aimed at protecting such historical or archaeological resources.

(h) Prohibit construction workers from engaging in the exploitation of natural resources such as hunting, fishing, and collection of forest products or any other activity that might have a negative impact on the social and economic welfare of the local communities. Prohibit explicitly any purchase of bush meat, as well as the transport of bush meat in Contractor's vehicles.

(i) Prohibit the transport of firearms in Program-related vehicles.

(j) Prohibit the transport of third parties in Program-related vehicles.

(k) Implement soil erosion control measures in order to avoid surface run off and prevent siltation, etc.

(l) Ensure that garbage, sanitation and drinking water facilities are provided in construction workers camps.

(m) Ensure that, in as much as possible, local materials are from legally authorized and (insofar as can be feasibly determined) environmentally sustainable sources.

(n) Ensure public safety and meet Kingdom of Lesotho traffic safety requirements for the operation of work to avoid accidents.

(o) Ensure that any trench, pit, excavation, hole or other hazardous feature is appropriately demarcated and signposted to prevent third-party intrusion and any safety hazard to third parties.

(p) Comply with Kingdom of Lesotho speed limits, and for any traffic related with construction at Project sites.

(q)Ensure that, where unskilled daily-hired workforce is necessary, such workers are hired from neighbouring communities as much as possible.

(r) Generally, comply with any requirements of Kingdom of Lesotho laws and regulations.

Besides the regular inspection of the sites by the supervisor appointed by the Client for adherence to the Contract conditions and specifications, the Client may appoint an environmental inspector to oversee the compliance with these environmental conditions and any proposed mitigation measures. Department of Environment (DoE) may carry out similar inspection duties. In all cases, as directed by Project Engineer, the Contractor shall comply with directives from such inspectors.

Unless duly requested by the Contractor and authorized by Project Engineer, no servicing of vehicles is permitted near sensitive environments.

3. Trenches

No trench shall be left open for more than 7 days, unless duly authorized by Project Engineer upon Contractor's request. Trenches and other excavation works shall be demarcated and/or signposted to avoid third party intrusion and risks of injury or death.

General conditions related with topsoil stripping, storage and restoration apply.

The Contractor will take measures to dispose of water used for pressure tests in a manner that does not affect neighbouring settlements.

The Contractor will provide workers with appropriate Personal Protective gear and Equipment (PPE). especially if working with the replacement of asbestos pipelines. Recommended PPE for asbestos work includes: respirators and disposable clothing

4. Waste Management

All drums, containers, bags, etc. containing oil/fuel/surfacing materials and other hazardous chemicals shall be stored at construction sites on a sealed and/or bonded area in order to contain potential spillage. All waste containers, litter and any other waste generated during the construction shall be collected and disposed of at designated disposal sites in line with the applicable Health, and Safety Guidelines as well as Kingdom of Lesotho waste management regulations.

In the event of a limited hydrocarbon spill, the Contractor will recover spilled hydrocarbons and contaminated soils in sealed drums and dispose of them in an authorized waste management facility.

All drainage and effluent from storage areas, workshops, housing quarters and generally from construction sites shall be captured and treated before being discharged into the drainage system in line with applicable government water pollution control regulations.

Used oil from maintenance shall be collected, properly stored in sealed containers, and either disposed of appropriately at designated sites or be re-cycled.

Entry of runoff into construction sites and staging areas shall be restricted by constructing diversion channels or holding structures such as berms, drains, dams, etc. to reduce the potential of soil erosion and water pollution.

Construction waste shall not be left in stockpiles along the project site but removed and reused or disposed of on a daily basis.

Where temporary dump sites for clean excavated material are necessary, they shall be located in areas, approved by Project Engineer, where they will not result in supplemental erosion. Any compensation related with the use of such sites shall be settled prior to their use.

Areas for temporary storage of hazardous materials such as contaminated liquid and solid materials shall be approved by Project Engineer and appropriate local and/or relevant national or local authorities before the commencement of work. Disposal of such waste shall be in existing, approved sites. Waste containing asbestos (old pipelines, etc.) is to be disposed of at authorized locations in a manner to discourage reuse or scavenging.

5. Quarries and Borrow Areas

The Contractor shall obtain appropriate licenses/permits from relevant authorities to operate quarries or borrow areas. The location of quarries and borrow areas shall be subject to review and approval by relevant local and national authorities.

New extraction sites:

a) Shall not be located less than 1km from settlement areas, archaeological areas, and cultural sites - including churches and cemeteries, wetlands or any other valued ecosystem component, or on high or steep ground.

b) Shall not be located in water bodies, or adjacent to them, as well as to springs, wells, well fields.

c) Shall not be located in or near forest reserves, natural habitats or national parks.

d) Shall be designed and operated in the perspective of an easy and effective rehabilitation. Areas with minimal vegetation cover such as flat and bare ground, or areas covered with grass only or covered with shrubs less than 1.5m in height, are preferred.

e) Shall have clearly demarcated and marked boundaries to minimize vegetation clearing and safety hazards for third parties.

Vegetation clearing shall be restricted to the area required for safe operation of construction work. Vegetation clearing shall not be done more than two months in advance of operations.

Stockpile areas shall be in areas where trees or other natural obstacles can act as buffers to prevent dust pollution, and generally at a distance from human settlements. Wind shall be taken into consideration when siting stockpile areas. Perimeter drains shall be built around stockpile areas. The Contractor shall deposit any excess material in accordance with the principles of these guidelines, and any applicable ESMP, in areas approved by local authorities and/or Project Engineer.

6. Rehabilitation of Work and Camp Sites

Topsoil shall be stripped, removed and stored for subsequent rehabilitation. Soils shall not be stripped when they are wet. Topsoil shall not be stored in large or high heaps. Low mounds of no more than 1 to 2m high are recommended.

Generally, rehabilitation of work and camp sites shall follow the following principles:

- To the extent practicable, reinstate natural drainage patterns where they have been altered or impaired.

- Remove toxic materials and dispose of them in designated sites. Backfill excavated areas with soils or overburden that is free of foreign material that could pollute groundwater and soil.
- Ensure reshaped land is formed so as to be stable, adequately drained and suitable for the desired long-term land use and allow natural regeneration of vegetation.
- Minimize erosion by wind and water both during and after the process of reinstatement.
- Compacted surfaces shall be deep ripped to relieve compaction unless subsurface conditions dictate otherwise.

7. Management of Water needed for Construction Purposes

The Contractor shall at all costs avoid conflicting with water needs of local communities. To this effect, any temporary water abstraction for construction needs from either ground or surface water shall be submitted to the following community consultation process:

- Identification of water uses that may be affected by the planned water abstraction,
- Consultation with all identified groups of users about the planned water abstraction,
- In the event that a potential conflict is identified, report to the supervising authority.

This consultation process shall be documented by the Contractor (via minutes of meeting) for review and eventual authorization of the water withdrawal by Project Engineer.

Abstraction of both surface and underground water shall only be done with the consultation of the local community as mentioned and after obtaining a permit from the relevant authority.

Abstraction of water from marshes, and similar wetlands is prohibited.

Temporary damming of streams and rivers is submitted for Project Engineer approval by the. It shall be done in such a way as to avoid disrupting water supplies to communities downstream, and to maintain the ecological balance of the river system.

No construction water containing spoils or site effluent, especially cement and oil, shall be allowed to flow into natural water drainage courses. Similarly, wash water from washing out of equipment shall not be discharged into water courses or road drains. Washing bays shall be sited accordingly. Unless site conditions are not favourable, it will generally be infiltrated through soak pits or similar means.

Site spoils and temporary stockpiles shall be located away from the drainage system, and surface run off shall be directed away from stockpiles to prevent erosion.

8. Traffic Management and Community Safety

Location of temporary access roads shall be done in consultation with the local community and based on the screening results, especially in important or sensitive environments. Temporary access roads shall not traverse wetland areas or other ecologically sensitive areas. The construction of any access roads shall be submitted to a prior consultation process with potentially affected communities that will be documented (minutes of meetings) for the Project Engineer's review and approval.

Upon the completion of construction works, all temporary access roads shall be ripped and rehabilitated.

Measures shall be taken to suppress dust emissions generated by Program traffic.

Maximum speed limits for any traffic related to Lesotho Metropolitan Fiber Distribution Network (LEMOFI) - shall be the following:

- Inhabited areas: 50 km/h
- Open road: 80 km/h.

9. Salvaging and Disposal of Obsolete Components found by Rehabilitation Works

Obsolete materials and construction elements such as electro-mechanical equipment, pipes, accessories and demolished structures shall be salvaged and disposed of in a manner approved by Project Engineer. The Contractor has to agree with the supervisor which elements are to be surrendered to the Client's premises, which will be recycled or reused, and which will be disposed of at approved landfill sites.

Any asbestos cement material that might be uncovered when performing rehabilitation works will be considered as hazardous material and disposed of in a designated facility. Scavenging and reuse of such materials must be prohibited.

10. Compensation of Damage to Property

Compensation of land acquired permanently for Program purposes will be handled under Client responsibility based on the provisions of the BOQ. However, in the event that the Contractor, deliberately or accidentally, damages property, he shall repair the property to the owner's satisfaction and at his own cost. For each repair, the Contractor shall obtain from the

owner/user a certificate that the damage has been made good satisfactorily in order to indemnify the Client from subsequent claims.

In any case where compensation for inconveniences, damage of crops etc. are claimed by the owner, the Client has to be informed by the Contractor through Project Engineer.

11. Contractor's Health, Safety and Environment Management Plan (HSE-MP)

Within 6 weeks of signing the Contract, the Contractor shall prepare an HSE-MP to ensure the adequate management of the health, safety, environmental and social aspects of the works, including implementation of the requirements of these general conditions and any specific requirements of an ESMP for the works. The Contractor's EHS-MP will serve two main purposes:

The Contractor's HSE-MP shall provide at least:

- A description of procedures and methods for complying with these general environmental management conditions, and any specific conditions specified in an ESMP
- A description of specific mitigation measures that will be implemented in order to minimize adverse impacts
- A description of all planned monitoring activities and the reporting thereof; and
- The internal organizational, management and reporting mechanisms put in place for such.

The Contractor's HSE-MP will be reviewed and approved by the Client before start of the works. This review should demonstrate if the Contractor's HSE-MP covers all of the identified impacts and has defined appropriate measures to counteract any potential impacts.

12. HSE Reporting

The Contractor shall prepare bi-monthly progress reports to the Project Engineer or DoE on compliance with these general conditions, the sub-program ESMP if any, and his own HSE-MP. The Contractor's reports will include information on:

- HSE management actions/measures taken, including approvals sought from local or national authorities
- Problems encountered in relation to HSE aspects (incidents, including delays, cost consequences, etc. as a result thereof)

- Non-compliance with contract requirements on the part of the Contractor
- Changes of assumptions, conditions, measures, designs and actual works in relation to HSE aspects; and
- Observations, concerns raised and/or decisions taken with regard to HSE management during site meetings

The reporting of any significant HSE incidents shall be done as soon as practicable. Such incident reporting shall therefore be done individually. The Contractor should keep his own records on health, safety and welfare of persons, and damage to property. It is advisable to include such records, as well as copies of incident reports, as appendixes to the bi-monthly reports. Details of HSE performance will be reported to the Client.

13. Training of Contractor's Personnel

The Contractor shall provide sufficient training to his own personnel to ensure that they are all aware of the relevant aspects of these general conditions, any program ESMP, and his own HSE-MP, and are able to fulfil their expected roles and functions. Specific training will be provided to those employees that have particular responsibilities associated with the implementation of the HSE-MP. Training activities will be documented for potential review by the Client.

Amongst other issues, training will include an awareness session for all employees on HIVAIDS as well as Trafficking in Persons.

14. Penalties for Non-Compliance

In the HSE-MP, the Contractor shall specify strict penalties (warnings, dismissal, etc.) and transparent enforcement procedures for non-compliance by any employees or contracted personnel. The Project Engineer shall oversee the Contractor's timely and appropriate application of these procedures during project construction.

Any material (non-trivial) environmental or social damages by the Contractor due to noncompliance with these Rules must be rectified before the Contractor will be eligible to receive his final payment.

APPENDIX 3

METHOD STATEMENT TEMPLATE

Contractor:		**Contract No.**		**Contract Name:**	
Developed by:		**Date:**		**Signature:**	
Task:					**Task name should correspond with the title of the TRA.**
Brief description of activity/work:					**Method Statement No.** **TRA No.**

Part 1

Ref. #	**Task steps in sequence** (If applicable, these should align with any associated SWP/SOP to enable cross-referencing)	**SWP / SOP**			**Potential Hazards**	**Controls**
		Exist? (Y/N)	Develop? (Y/N)	Reference		
1.						
2.						
3.						
4.						
5.						

6.						
7.						
8.						

Part 2	
Training, qualifications and experience (other than in SWPs/SOPs) required to complete this Task	**Inspections and tests required**
Note: The records of qualifications and experience are held in local files	

Codes of Practice, legislation, standards which apply to this Task	**Engineering certificates/permits/approvals required for this Task**	**Equipment / Machinery / Tools / Vehicles required for this Task**

Person(s) responsible for supervising work: (Inspecting and approving work areas, work methods, protective measures, plant, equipment, power tools, etc.)

Name:	**Position:**
Note: For a list of names and signatures of staff instructed in this MS see local training records.	
Part 3	

Contractor	**Responsible Person - Name**	**Signature**	**Date**
Contractor's ECO			**___/___/20___**
Project Engineer	**Responsible Person - Name**	**Signature**	**Date**
ESSM			**___/___/20___**

APPENDIX 4

INCIDENT FLASH TEMPLATE

INCIDENT FLASH REPORT

INCIDENT:						
INCIDENT TYPE [Mark X]	Safety	Health	Environment	Quality	Labour	Community
	Other (Specify):					
LOCATION:						
DATE:			**TIME:**			
BRIEF DESCRIPTION:						
INJURY CLASSIFICAT	Near Miss / No	First Aid / Medical	Lost Time Injury	Serious / Perman	Fatality	Not
IN THE CASE OF A MOTOR VEHICLE ACCIDENT						
Road Condition:			Weather Condition:			
Vehicle Registration No.:			Third Party Registration No:			
Damage to Vehicle:			Damage to Vehicle:			
PARTIES	LECC		Contractor	Governm	Member of	Other
PARTICULARS OF PARTIES INVOLVED	Full Name:		Passport Number / ID:		Employer:	
PARTICULARS OF WITNESSES						

Witness 1 Name:		Contact number:
Witness 2 Name:		Contact number:
Report by (Name)		
Signed		
Date		

APPENDIX 5

NON-CONFORMANCE REPORT TEMPLATE

NON-CONFORMANCE REPORT			
Contract No.:		**Contractor:**	
Contract Name:		**NCR No.:**	
Contractor's Representative:		**NCR Title:**	
Reference:			
Description of non-conformity			
Prepared By:		**Signature**	
Date:			
Attachment:			

APPENDIX 6

WEEKLY SHE REPORT TEMPLATE

Contractor:		**Project:**		**Reporting Week Start Date:**	
Report by:		**Signature:**		**Reporting Weekend Date:**	

A.	**Incidents (including Near-misses) during the week**	**Vehicle accident**	**Grievances**	**Damage to property**	**Near-miss**	**Theft**	**Injury**	**Natural Disaster**	**Damage/ Spill**	**Fatality**

B.	**Significant Accomplishments or Issues Requiring Special Attention (log daily activities here)**
1.	
2.	
3.	
4.	
5.	

C.	Subcontractors on site this week
1.	
2.	
3.	

D.	Service provider/ supplier on site this week
1.	
2.	

E.	Weekly Inspections conducted	Inspection Findings and Resolution
	1. Daily vehicles/plant inspection	
	2. Camp site inspection	
	3. Job Observation	
	4. Hand tool inspection	
	5. Fire extinguisher inspection	
	6. First aid inspection	

	7. Concrete mixture inspection	
	8. Rock Drill inspection	
	9. Safety harness inspection	
	10. Lever hoist pre-use inspection	
	11. Clamp pre-use Inspection	
	12. Rescue Kit Inspection	
	13. Portable concrete mixture	
	14 Slings pre-use inspection	
	15. Winch inspection	
	16. Tensioner inspection	
	17. Working earth inspection	

	SHE Activities	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**	**Sun**
F.	1. DSTIs							
	2. Induction – Employees							
	3. Induction – Sub-contractors							
	4. Induction – Visitors							

	5. SHE-specific Training							
	6. SHE Meetings							
	7. Toolbox Topics							
	9. Risk Assessments Conducted							
	10. Complaints Received							
	11. Audits Conducted							

G.	**High Priority Corrective Actions Raised**	**Source Reference**	**Action Status**	**Comments**
	None			

H.	**Dust and Noise Management**
	Dust Control
	Noise Control

I.	**Waste Management**
	General Waste

	Hazardous Waste

J.	**Water Management**
	Surface Water
	Ground Water
	Storm Water

K.	**Ablution Facilities**

L.	**Flora and Fauna Management**
	Protected Species
	Alien Species

M.	**Rehabilitation**

APPENDIX 7

MONTHLY SHE SUMMARY REPORT

Contractor:		**Project:**		**Date:**	
Report by:		**Signature:**		**Reporting Month:**	

Item #	Description	Reporting period	Year to date - cumulative	Comments/Details
Occupational Health and Safety Reporting				
S1	**Total Number of Employees**			
S2	**Total Person days**			
S3	**Number of Fatal Accidents on duty**			
S4	**Number of Lost Time Injuries (LTI) ****			
S5	**Number of Recordable/Medical Treatment Cases****			
S6	**Number of First Aid Cases**			
S7	**Number of Near misses****			
S8	**Number of Motor-vehicle Accidents**			
S9	**Lost Time Injury Frequency Rate (LTIFR)****			
S10	**Man-hours Since Last Lost Time Injury**			
S11	**Workman's Compensation Claims**			

S12	**Number of SHE Trainings/Toolbox Talks Held**			
S13	**SHE Topics Covered**			
Environmental and Social Reporting				
E1	**Number of Environmental Incidents**			
E2	**Public/Authority Complaints Received**			
E3	**Number of Stakeholders Engagements Held/attended**			
General				
G1	**Risk Assessments Conducted**			
G2	**SHE Audits Performed**			
G3	**Number of Non-conformance Reports (NCR) Issued****			
G4	**Number of Employees Trained in SHE-Specific Topics**			

APPENDIX 8

GRIEVANCE REGISTRATION FORM - ENGLISH

This form is for the use to record any complaints, grievances, issues, comments, requests, suggestions or compliments they have with regard to the implementation of the project.

Name of Project _____

Date: _____ **Grievance Number:** _____

Name of Complainant: _____**Cell:** _____

Village: _____**Area Chief:** _____

Community Council:_____**District:** _____

Grievance Description: _____

_____

_____

_____ (Use extra page if needed)

If a Complaint is of such a nature that it poses potential harm, injury or danger to an employee or any member of the public, **Contact Project Engineer; Tel.** _____

Signature of Complainant: _____

Recording Officer: _____ Date _____

Signature of Recording Officer _____

APPENDIX 9

GRIEVANCE REGISTRATION FORM - SESOTHO

Foromo ena e sebelisoa ho ngolisa litletlebo ka nako ea tšebetso ea morero

Lebitso la Morero _____

Letsatsi: _____**Nomoro ea Tletlebo:** _____

Lebitso la Motletlebi: _____**Nomoro ea Mohala:** _____

Motse: _____**Morena oa Motse:** _____

Lekhotla la Mathomo:_____ **Setereke:** _____

Tlhaloso ea Tletlebo:_____

_____

(***Sebelisa leqephe le leng ha ho hlokahala***)

Haeba tletlebo e ka baka likotsi ho morero kapa mosebetsi oa morero kapa ho Sechaba ka kakaretso, **Tsebisa Mookameli oa Morero (Project Engineer); Tel.** _____

Motekeno oa Motletlebi: _____

Ofisiri e ngola tletlebo: _____**Letsatsi** _____

Motekeno oa Ofisiri e ngolang tletlebo _____

APPENDIX 10

GRIEVANCE INVESTIGATION FORM - ENGLISH

PARTICULARS OF THE GRIEVANCE			
Name of Complainant:			
Grievance Number:			
Summary or Grievance Description:			
Grievance location (District, Community Council, Electoral Division, Village):			
TYPE OF INVESTIGATION CONDUCTED			
Field or Site Visit: Yes. ( ) No. ( )	Desk Review: Yes. ( ) No. ( )	Date Conducted:	
Key people consulted/interviewed:			
Narration of the investigation taken:			
Summary of the findings:			

Recommendations:	
Responsible/Investigation Officer Name:	
Signature:	
Designation:	
Date:	
District:	

APPENDIX 11

GRIEVANCE INVESTIGATION FORM - SESOTHO

LINTLHA TSA TLETLEBO			
Lebitso la Motletlebi:			
Nomoro ea tletlebo:			
Kakaretso e hlakile ea tletlebo:			
Sebaka sa tletlebo (Setereke, Lekhotla la Mathomo, Setsi (Electoral Division), Motse):			
MOFUTA OA LIPATLISISO TSE ENTSOENG			
Ketelo ea Sebaka: Ee. ( ) Chee. ( )	Tlhatlhobo ea litokomane tse teng: Ee. ( ) Chee. ( )	Letsatsi:	
Batho ba botsitsoeng ka ketsahalo:			
Tlhaloso ea Ketsahalo:			
Kakaretso ea Liphuputso:			

Likhothaletso:	
Ofisiri e entse lipatlisiso:	
Motekeno:	
Boemo Mosebetsing:	
Letsatsi:	
Setereke:	

APPENDIX 12

SITE ESTABLISHMENT CHECKLIST

Inspection Date & Time_____ **Contractor** _____**Project** _____

ECO_____ **Signature**_____ **Date**_____

ESSM_____ **Signature** _____ **Date**_____

Site Establishment (Pre-construction)

Item	Available or Not	Quantity
Office		
Storeroom (lined floor)		
Two Toilets (male and female) located 10m away from water sources		
Site Camp fenced		

Item	Available or Not	Quantity
Work Area Demarcated		
Batching Area (non-reactive base)		
Waste Management Area (labelled bins)		
Construction Signage (safety signs)		
Eating Area		
Fire extinguisher at storeroom (serviced and in working order)		

Assembly Point		
Portable Water		
Security		

Health and Safety

Item	Available or Not	Quantity
Appropriate PPE (overalls, safety vests, hard hats, heavy duty gloves, steel toe boots, steel toe gumboots and nose bag)		
Emergency Horn		
First Aid Kit		
Assembly Point		

Grievance Redress Mechanism

Item	Available or Not	Quantity
GRM box installed		
GRM box opened according to the specs		
Lock		

Licenses, Permits and Approvals

Item	Available or Not
Water Use License	
Wayleave	
Key Person Appointment Letters	

Key Personnel

Item	Available or Not
Environment and Social Safeguards Manager	
Resident Engineer	
Environmental control Officer	

APPENDIX 13

WEEKLY ENVIRONMENTAL, SOCIAL, HEALTH AND SAFETY MONITORING CHECKLIST

Inspection Date & Time_____ **Contractor** _____**Project** _____

ECO_____ **Signature**_____ **Date**_____

ESSM_____ **Signature** _____ **Date**_____

Inspection Item	**Key Performance Indicator**	**ESMP Compliant**			**Comment**	**Corrective Action Required**
		Yes	**No**	**N\A**		
1. Camp Site	Waste disposal plan					
	No. of garbage bins					
	Fence					
	Firefighting equipment in working order					
2. Top soil	Height within 2.5m					
	Oil protection					
	Erosion Protection					
	Compaction					

	Chance Find Procedure Implementation					
3. Storage Areas						
Fuel	Containment					
Topsoil	Water and oil diversion					
	Seeding					
Aggregate	Compacted non-reactive base					
Cement	Enclosed and clean					
Batching	Rain water diverted					
	Demarcated					
	Effluent not discharged into the environment					
Waste	Labelling					
	Secured					
5. Dust Control	PPE (dust masks)					
6. Access roads	Existing access roads used					

	New road access approvals					
	Drainage established					
	Method statement for community crossing (pedestrians)					
7. Sanitation	Efficient, sanitary and non-					
	offensive latrines					
	10 employees per toilet					
	Both gender streams accommodated					
8. Solid wastes	Waste separation					
	Waste reused					
	Approval (Supervising Engineer) for off-site disposal area					
	Site induction register					
9. Water courses and effluent	Water use permit					
	Notification to DWA					
	Rehabilitation of river banks					

	Water turbidity					
	Odour					
	Flow					
10. Biodiversity	Awareness poster on protected					
	fauna and flora					
	Incident reports					
	Toolbox talk on biodiversity conservation					
11. Borrow pits	Ponds in borrow pits					
	Slopes					
	New pits approved by ESSM					
12. Personnel						
Labour recruitment	Clock-sheet					
	No. of local labourers					
	Transparent recruitment procedure					

Health and Safety	Portable water					
	PPE					
	Safety procedures and signage					
	Disease outbreak incident reports					
	First Aid and Emergency transport					
	HIV/AIDS awareness					
	Free condoms					
	GBV referral system					

13. Community Engagement	CLO appointed					
	Grievance Redress Committee appointed					
	GRM exists					
14. Cultural Heritage Sites	Archaeological chance find procedure in place					

	Chance finds records					
	Community participation in relocations					
15. Affected Fields	Planted fields avoided					
	Compensation for affected fields					
16. Site Clean-Up and Rehabilitation	Pre-project conditions restored					
	Disturbed areas revegetated					
	Visual impact minimised					
17. Monitoring	E & S records available					
	Monitoring is weekly					

APPENDIX 14

MONTHLY ESMP COMPLIANCE MONITORING AND EVALUATION CHECKLIST

Inspection Date & Time_____ **Contractor** _____**Project** _____

ECO_____ **Signature**_____ **Date**_____

ESSM_____ **Signature** _____ **Date**_____

C = Compliant **NC =** Non-Compliant **P C =** Partially Compliant **N/A =** Not Applicable

Ref.	ESMP Commitment	C	NC	PC	N/A	Evidence	Corrective Action Required
1.	**CAMP ESTABLISHMENT & CONSTRUCTION**						
1.1	Camp and Construction sites fenced						
1.2	Camp and Construction sites security established						
1.3	Camp and Construction sites kept neat						
1.4	No breaches on camp and construction site fence						
1.5	Location of camp poses minimum impact on Environmental and Social conditions						
1.6	No unauthorised pedestrian or vehicular access allowed into fenced off-limits						
1.7	No construction camp located on sensitive ecosystem						

1.8	Camp buildings are either containers or prefabricates						
1.9	Camp buildings appropriately constructed						
1.10	Standard firefighting equipment available on site and in working order						
1.11	No gas/metal cutting or welding takes place in the camp area						
1.12	All construction related structures, equipment, materials and facilities are removed at the completion of the project						
1.13	The construction site is cleared and cleaned and rehabilitated to the satisfaction of the ESA						
2	**CLEARING, STRIPPING AND GRUBBING**						
2.1	Use of appropriate machinery for each task ensuring minimal environmental impact						
2.2	Topsoil cleared of invasive vegetation and debris						
2.3	Topsoil not compacted						

2.4	Topsoil stockpiles within 2.5m height, not steeper than 1 vertical to 2.5 horizontal and not stored for more than 1 year						
2.5	Topsoil protected from oil contamination						
2.6	Topsoil protected from soil erosion						
2.7	Chance Find Program followed in case of unearthed artefacts						
3	**INITIAL EARTHWORKS AND PLATFORMS**						
3.1	Stormwater diverted away from easily erodible areas e.g. Topsoil stockpiles, disturbed areas and steep ground						
3.2	Soil piling done on flat surfaces						
3.3	Stockpiles seeded or protected by erosion control fabric						
3.4	Collect water run-off from platforms into drainage system						

4	**HYDROCARBON MANAGEMENT**						
4.1	No oil or fuel leaks from vehicles or plant						
4.2	All vehicles have drip trays for emergencies						
4.3	No vehicle servicing and refuelling on bare soil						
4.4	No oils enter waterbodies						
4.5	Use of oil spill kits in case of spills						
4.6	Oil separation performed prior to water being discharged into the environment						
4.7	Staff trained on hydrocarbon handling and clean up						
5	**STORAGE AREAS**						
5.1	***Fuel***						
a)	Stored above ground						
b)	Stored on bund walls with a sump installed and the walls are such that they accommodate 110% of the contents of the storage facility						
5.2	***Topsoil***						
a)	Stored on a flat surface						

b)	Protected from stormwater run-off and strong winds						
5.4	***Aggregate***						
a)	Fine aggregate is stored on a compacted sub-base platform protected from erosion (e.g. bund walls)						
b)	Coarse aggregate stored on compacted inert sub- base material						
c)	No aggregate spread beyond the storage area						
5.5	***Cement***						
a)	Storage area is enclosed						
b)	The storage area is clean; free from cement products						
5.6	***Batching***						
a)	Batching area demarcated for this purpose						
b)	Storm water not allowed to follow through this area						
c)	Area enclosed in bund walls divided into compartments for various types of materials						
d)	Air filters cleaned and replaced on regular basis						

e)	Batching area effluent discharges into sedimentation pond						
f)	The pond undergoes evaporation for residual solid to be						
	Collected for proper disposal						
5.7	***Waste***						
a)	Waste collection site demarcated						
b)	Use of labelled waste bins for easy waste separation (e.g. of waste streams: general waste, concrete rubble, hazardous waste and effluent)						
c)	Bins secured or guarded against wind and animals						
d)	Appropriate signage for hazardous waste						
7	**DUST CONTROL**						
7.1	Appropriate measures taken to minimise dust during drilling and batching						
7.2	Dust control by spraying						
7.3	Personnel wear nose masks for protection against dust						
8	**ACCESS ROADS AND ACCOMMODATION OF TRAFFIC**						

8.1	Use of existing access roads favoured						
8.2	Topsoil removed (**refer to section 2**) prior to constructing new access road						
8.3	All new temporary roads approved by Project Manager						
8.4	Temporary roads decommissioned and rehabilitated using stockpiled topsoil						
8.5	Areas susceptible to erosion protected by permanent or temporary drainage works						
8.6	Detailed method statement for pedestrian traffic management if the bridge is to be constructed at the existing community crossing						
9	**SANITATION**						
9.1	Adequate chemical latrines (or temporary pit latrines: VIP Type) provided on site						
9.2	Chemical latrines serviced on weekly basis to						

	prevent overflow						
9.3	Latrines are efficient, sanitary and non-offensive						
9.4	Minimum ratio of 1 toilet to10 persons per one work area (i.e. camp site and construction site) NB: If both men and women work on the project, 2 toilets (one with sanitary facilities) are required irrespective of whether there are 10 or less employees.						
9.5	The latrine(s) are decommissioned, structures removed from site and pit filled with stockpiled soil						
10	**HOUSEKEEPING AND WASTES**						
10.1	Temporary storage of construction waste kept in designated areas						
10.2	Off-site disposal of construction done in an approved area (approved by Supervising Engineer and the property owner)						
10.3	Spoil material used for rehabilitation to mitigate the visual impact (spread and level out)						
10.4	General waste generated on site stored and sent to						

	approved site						
10.5	Site clean-up done regularly and litter appropriately kept in refuse bins						
10.6	Site induction includes waste management: waste handling, separation and appropriate PPE						
11	**HYDROLOGY AND RIVER COURSES**						
11.1	Contractor notified the Department of Water Affairs and provided construction programme prior to commencement of works close to the river or riverbank						
11.2	Construction works cause no further damage to the river embankment and rehabilitation implemented in case of any preventable damage						
11.3	River water not contaminated with construction materials and other pollutants						
11.4	No laundry or car wash done in the river						
11.5	No greywater discharged into the river						
11.6	No eroded sediments enter the river						
11.7	The river flow is unobstructed						
12	**FAUNA AND FLORA**						

12.1	Impact on natural vegetation kept minimal						
12.2	Indigenous plants and animals are protected						
12.3	All incidents of harm to any animal or natural vegetation reported to ESSM						
13	**BORROW PITS**						
13.1	Existing borrow pits used as far as possible						
13.2	Pond formation avoided in borrow pits						
13.3	No steep slopes allowed in a borrow pit						
13.4	All borrow pits rehabilitated after use						
13.5	New borrow pits endorsed by ESSM						
14	**PERSONNEL**						
14.1	***Labour Recruitment***						
a)	Locals recruited for unskilled and semi-skilled labour positions						
b)	Normal working hours adhered to otherwise overtime principle applies and overtime renumerated accordingly (Labour Act 2024)						
c)	Transparent non- discriminatory (in terms of gender, disability, religion and culture) recruitment policy in place						

14.2	***Facilities***						
a)	Eating Areas						
14.3	***Health and Safety***						
a)	Portable water made available for staff by contractor						
b)	Brand new PPE for each newly appointed person						
c)	Safety regulations and precautions in place and communicated with staff						
d)	Disease outbreaks prevented or overcome						
e)	Adequate First Aid and Emergency Transport services available						
f)	Fire Fighting equipment available at all areas prone to risk of fire						
g)	Safety warning signs are put up, visible to every employee						
h)	Employees have a clear understanding of HIV/AIDS						

	and associated preventative measures						
i)	Employees have access to HIV testing services, Free preventative commodities, ART and GBV referral system						
14.4	***Security***						
a)	Tight security maintained on site at all times						
14.5	***Conduct***						
a)	Observe safety warnings at all times						
b)	No tree felling except if approved by ESSM for execution of works						
c)	No fire setting outside designated areas						
d)	No trespassing on adjoining properties and no interference with livestock, crops or games						
e)	Personnel behaviour and discipline strictly supervised by the contractor						
f)	Measures to prevent hunting, capturing or killing animals are adhered to						
15	**PERSONNEL TRAININGS**						
15.1	Staff well educated and informed about the ESMP requirements through site inductions						

15.2	Staff conversant with Health and Safety regulations and precautions through daily toolbox talks						
15.3	Contractor enforces compliance to ESMP requirements by employees						
15.4	Employees sign off induction forms						
16	**COMMUNITY ENGAGEMENT**						
16.1	Community Liaison Officer appointed (link between the project and the community)						
16.2	Project steering committee elected to oversee community concerns regarding the project						
16.3	Grievance Redress Mechanism in place						
17	**CULTURAL HERITAGE SITES**						
17.1	An Archaeological chance find procedure is in place						
17.2	All archaeological chance finds are reported to the ESA						
17.3	Construction activities put on-hold after a chance find						
17.4	Investigations by Specialist/Archaeologist conducted						

17.5	Appropriate decision taken to alter the project design to preserve heritage or relocate the cultural objects						
17.6	Community participation in relocation plans						
18	**AFFECTED FIELDS**						
18.1	Efforts made to avoid disturbance to planted fields						
18.2	No vehicular traffic entered any agricultural field						
19	**SITE CLEAN-UP AND REHABILITATION**						
19.1	All structures, equipment, materials and facilities removed						
19.2	Site cleaned to pre-project conditions						
19.3	Use 150mm thick topsoil to rehabilitate disturbed areas upon completion of construction						
19.4	Loosen up compacted soil through ripping parallel to the contours						
19.5	Suitable substitute materials used in case of insufficient topsoil						
19.6	Vehicle access prohibited after topsoil placement						
19.7	Indigenous grass mix used for revegetation						
19.8	Visual impact managed through landscaping						
19.9	Initial topography nearly restored						

20	**MONITORING**						
20.1	The ECO keeps records of monitoring						
20.2	The frequency of monitoring is adequate						