

Abia State Rural Access and Agricultural Marketing Project

DRAFT REPORT

Environmental and Social Management Plan (ESMP) for Roads Rehabilitation (Spot Improvement [12 Roads -40.36km] and Upgrades [25 Roads - 92.78km]) in Twelve (12) Local Government Areas under Phase 2 Intervention Under the Abia State Rural Access and Agricultural Marketing Project (AB-RAAMP).



Federal Ministry of Agriculture and Rural Development

(FMARD)



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ACRONYMS AND ABBREVIATIONS

ADF	Agricultural Development Fund
AFD	French Development Agency
AfDB	African Development Bank
AB-RAAMP	Abia State Rural Access and Agricultural Marketing Project
APP	Agricultural Promotion Policy
ASEPA	Abia State Environmental Protection Agency
CAT	Convention Against Torture
CBARDP	Community Based Agriculture and Rural Development Project
CBOs	Community Based Organizations
CDC	Community Development Committee
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
СО	Carbon Monoxide
CRA	Child Rights Act
CRC	Convention on the Rights of the Child
CRPD	Convention on the Rights of Persons with Disabilities
CSA	Climate-Smart Agriculture
CSO	Chief Security Officer
DFRRI	Director for Food, Roads and Rural Infrastructure
E&S	Environmental and Social
EA	Environmental Assessment
EIA	Environmental Impact Assessment
EMS	Environmental Management Systems
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
ESO	Environmental Safeguards Officer
FCT	Federal Capital Territory
FDAS	Federal Department of Agricultural Sciences
FDC	Federal Department of Cooperatives
FDF	Federal Department of Fertilizer
FDF	Federal Department of Fisheries
FDLPC	Federal Department of Livestock and Pest Control Services

FDLR	Federal Department of Land Resources
FDPRS	Federal Department of Planning, Research and Statistics
FDRD	Federal Department of Rural Development
FDSSGR	Federal Department of Storage and Strategic Grain Reserve
FGN	Federal Government of Nigeria
FM	Financial Management
FMARD	Federal Ministry of Agriculture and Rural Development
FMEnv	Federal Ministry of Environment
FMLE	Federal Ministry of Labour and Employment
FMWASD	Federal Ministry of Women Affairs and Social Development
FPMU	Federal Project Management Unit
FRSC	Federal Road Safety Corps
GAP	Good Agricultural Practices
GBV	Gender Based Violence
GDP	Gross Domestic Product
GoN	Government of Nigeria
GRC	Grievance Redress Committee
ICCPR	International Covenant on Civil and Political Rights
ICESCR	International Covenant on Economic, Social and Cultural Rights
ILO	International Labour Organization
LGAs	Local Government Areas
MC	Medium Curing
MDAs	Ministries, Departments and Agencies
NAERLS	National Agricultural Extension and Research Liaison Services
NAIC	Nigerian Agricultural Insurance Corporation
NALDA	National Agricultural Land Development Authority
NATIP	National Agricultural Technology and Innovation Policy
NBS	National Bureau of Statistics
NE	North East
NESREA	National Environmental Standards and Regulations, Enforcement Agency
NGOs	Non-Governmental Organizations

NHA	National Health Act
NIMET	Nigeria Meteorological Agency
NISHA	Nigeria Hydrological Services Agency
NOAA	National Oceanic and Atmospheric Administration
NPF	Nigerian Police Force
NPIRD	National Policy on Integrated Rural Development
NSCDC	Nigerian Security and Civil Defence Corps
NSTC	National Technical Steering Committee
OP	Operational Policy
OSHA	Occupational, Health and Safety Act
PAD	Project Appraisal Document
PAPs	Project Affected Persons
PDO	Project Development Objective
PHC	Primary Healthcare Center
PIM	Project Implementation Manual
PIU	Project Implementation Unit
PPPs	Public Private Partnerships
RAAMP	Rural Access and Agricultural Marketing Project
RAMP-2	Second Rural Access and Mobility Project
RAP	Resettlement Action Plan
ROW	Right of Way
RPF	Resettlement Policy Framework
RTTP	Rural Travel and Transport Policy (RTTP)
SDG	Sustainable Development Goals
SEA	Sexual Exploitation and Abuse
SH	Sexual Harassment
SLO SMoA	Social License to Operate State Ministries of Agriculture
SON	Standard Organization of Nigeria
SPCs	State Project Coordinators
SPIU	State Project Implementation Unit

SPMC	State Project Monitoring Committee
SSO	Social Safeguards Officer
STDs	Sexually Transmitted Diseases
STIs	Sexually Transmitted Infections
TA	Technical Assistant
ToR	Terms of Reference
UN	United Nation
UNFCCC	United Nations Framework Convention on Climate Change
USD	United State Dollars
VAC	Violence Against Children
VAPP	Violence Against Persons Prohibition Act
WHO	World Health Organization
WB	World Bank

CHAPTER ONE

INTRODUCTION

1. Background Information

The Federal Government of Nigeria (FGN) has initiated the preparation of the Rural Access and Agricultural Marketing Project (RAAMP), the successor of the Second Rural Access and Mobility Project (RAMP-2). RAAMP has been valued at an implementation cost of 575 million USD. The project will be supported with financing from the World Bank (WB) and the French Development Agency (AFD) and will be guided by the Government's Rural Travel and Transport Policy (RTTP). The contributions from the World Bank, the AFD and the Government of Nigeria (GoN) are 280 million USD, 230 million USD, and 65 million USD respectively. The lead agency for the Federal Government is the Federal Department of Rural Development (FDRD) of the Federal Ministry of Agriculture and Rural Development (FMARD). The Federal Project Management Unit (FPMU) is responsible for overseeing the project on behalf of the FDRD, while at the state-level, the State Project Implementation Units (SPIUs) of nineteen (19) participating states (Abia, Akwa Ibom, Bauchi, Ebonyi, Ekiti, Gombe, Kaduna Kano, Katsina, Kebbi, Kogi, Kwara, Niger, Ogun, Ondo, Osun, Oyo, Plateau and Sokoto states) are implementing RAAMP in their respective states on behalf of their state governments. The Project Development Objective (PDO) of RAAMP is to improve rural access and agricultural marketing in selected participating states whilst strengthening the financing and institutional base for effective development, maintenance and management of the rural road network sustainability. RAAMP has four project components - Component A: Improvement of Rural Access and Trading Infrastructure; Component B: Asset Management, Agro-logistics Performance Enhancement and Sector Reform; Component C: Institutional Development, Project Management and Risk Mitigation and Component D: Contingent Emergency Response.

Specifically, the Abia State RAAMP (AB-RAAMP) in view of achieving the outputs of Component A, proposes to carryout intervention works on 37 roads totaling 136.98km. Precisely, the proposed intervention works shall include: Spot Improvement (44.2km) and rural road upgrades (92.78km), under the Phase 2 work package. The intervention works/sub-projects shall be situated in various rural communities located within 11 Local Government Areas (LGAs) across the three senatorial districts¹ of Abia State (according to the Terms of Reference). The proposed intervention works have undergone Environmental and Social (E&S) screening and have been deemed necessary for E&S assessment. Consequently, the AB-RAAMP is preparing an Environmental and Social Management Plan (ESMP) to identify, assess and mitigate the envisaged potential adverse E&S risks and impacts associated with the proposed intervention works.

1.1.1 Rural Road Development Overview in Nigeria

As in most of Sub-Saharan Africa, Nigeria's public investments in rural transport have concentrated on improving road infrastructure, mainly highways and not feeder roads². The post fourth national plan period (1985 - 1990) witnessed some improvements in the provision of rural infrastructure undertaken by the former Directorate for Food, Roads and Rural Infrastructure (DFRRI). The Directorate made rural road development a first priority in order to improve access to the rural communities, thereby providing a platform for other infrastructure such as electricity, water supply and provision of agro products investments and inputs. By 2007, it was estimated that about 30 million Nigerians currently live in nearly isolated rural communities and lack access to social services. Of the country's 160,000 km of state and rural roads, less than 10-15% of rural roads are considered to be in good condition³.

¹ Abia State has three (3) Senatorial Districts and Seventeen (17) LGAs. However, the intervention works shall be implemented across twelve (12) LGAs within the three (3) senatorial districts viz: Abia North (Arochukwu, Ohafia, Bende, Umu-Nneochi, Isiukwuato LGAs); Abia Central (Umuahia North, Umuahia South, Isiala Ngwa North and Isiala Ngwa South LGAs); Abia South (Aba North, Ugwunagbo and Obingwa LGAs)

² Source: The Rural Road Question and Nigeria's Agricultural Development, World Bank (1989)

³ Source: Measuring the Impact of Rural Road Rehabilitation, World Bank (2018)

Remarkably, in recent years, funding received by the GoN through international donor agencies for projects such as Community Based Agriculture and Rural Development Project (CBARDP) – African Development Bank (AfDB), Rural Access and Mobility Project (RAMP) – WB and AFD, RAMP 2 – WB and AFD, and recently Rural Access and Agricultural Marketing Project (RAAMP) – WB and AFD have and are continuing to improve the conditions of rural roads and access to markets across the country.

2. Project Locations and Description of Proposed Intervention Works

The proposed interventions will traverse 11 out of the 17 LGAs in Abia State namely: Arochukwu, Ohafia, Bende, Isuikwuato, Umunneochi, Umuahia North, Umuahia South, Isialangwa North, Isialangwa South, Obingwa, Aba South and Ugwunagbo LGAs. Majority of the LGAs are rural except Umuahia North and Aba North. The intervention works for the rural roads shall broadly involve i) Spot improvement, and ii) Upgrades. Tables 1 – 2 below provides details on each cadre of intervention works to be carried out.

SN	LOT	LGA	ROAD NAME	LENGTH (KM)	INTERVENTION TYPE
1.	1.	Arochukwu	Achara – Okpo – Nkporo – Ututu	10.39km	Upgrade
2.			Umeye I – Umeye II	1.40km	Upgrade
3.			Obinto – Atani Road	1.20km	Upgrade
4.		Ohafia	Okagwe – Nkwebi Onwuwanyanwu	4.30km	Upgrade
5.	2	Bende	Sameke Junction – Amaraugboghu	2.46km	Upgrade
6.	-	Umu Nneochi	Oba Junction – Umumaduako – Umumezie	2.55km	Upgrade
7.	-		Orie Ngodo Market - Obinohia Umudim – Lomara	5.20km	Upgrade
8.	3.	Isialangwa North	Amorji – Ngbedeala – Ntigha Umukalu – Mbawsi	4.45km	Upgrade
9.			Amorji Market Road – Amorji Junction	1.61km	Upgrade
10.			Ogbagala Junction – Amaugba	0.49km	Upgrade
11			Nbawsi – Agburuike – Umuomaighiukwu	5.49km	Upgrade
12		Isialangwa South	Amiyi Nvosi – Ometeghi – Umuada Nvosi – Omuapu Road	5.60km	Upgrade
13	-		Nkwo Ebe – Umunko – Umuakwu	3.62km	Upgrade
14			Umunkpeyi – Amachi – Umuaro	2.70km	Upgrade
15	5	Umuahia South	Eziama – Amaibo Ring Road	3.95km	Upgrade
16	•		Agalaba Ise – Ahiamorie – Umuamadi – Amalaubi – Umuokereke	6.00km	Upgrade
17			Apumiri – Avo – Amibo Express	1.52km	Upgrade
18			Umuawoli Road	0.61km	Upgrade
19			Ogbodioriloku – Umuchiche – Mbaraukwu	4.40km	Upgrade
20		Umuahia North	Agalabano – Umuhu Central School – Ekeoba	1.36km	Upgrade
21	6	Obingwa	Nkwo Elechi Market – Umueme Road	2.11km	Upgrade

Table 1: List of Roads Selected for Upgrade

SN	LOT	LGA	ROAD NAME		LENGTH (KM)	INTERVENTION TYPE
22		Umuagu Ohuru Amaisii – Osaa Ukwu – Itungwa		9.30km	Upgrade	
23			Umuariama Ahiaba Ubi – Nkwo Elechi		2.98km	Upgrade
24			Nkwo Elechi Umuagu Umuorukwu Osusu Amaukwa Road		3.85km	Upgrade
25		Ugwunagbo	Asa Umunka – Umugo – Ameyi Oza – Ozata – Ugwati Asa		5.24km	Upgrade
			TOTAL	92.78km		

Table 2: List of Roads Selected for Spot Improvement

SN	LOT	LGA	ROAD NAME		LENGTH (KM)	INTERVENTION TYPE
1.	1.	Bende	Ozara Market Junction – Amaoku Alayi – Ugwueke	Road	2.8km	Spot Improvement
2.			Amaokwelu Alayi Junction – Amankalu – Akoli Imer	nyi	6.2km	Spot Improvement
3.	2.	Bende	Alayi – Ezeukwu Road		9.6km	Spot Improvement
4.			Ezeukwu – Ugwueke Road		6.6km	Spot Improvement
5.	3.	Bende	Bende Etitiulo – Ubibia – Ndiwo – Itumbuzo – Okop Ntalakwu	oedi –	4.3km	Spot Improvement
6.		Umuahia	Amaogwugwu Olololo Junction – Umukabia		0.67km	Spot Improvement
7.		North Umuafiaka – Umuokpara		2.6km	Spot Improvement	
8.	_	Umuahia	Old Umuahia (Divinity School) – Osah/Ohia Road		4.0km	Spot Improvement
9.		South	Ahiaukwu – Amangwo – Umuajata Umudere Amaka	ama	1.54km	Spot Improvement
10.	10.		Okpikpe Umuana – Ikot Ekpene Road		1.18km	Spot Improvement
11.		Aba South	a South Umuanyaso Road		0.5km	Spot Improvement
12.			Umuegwere Road		0.37km	Spot Improvement
			TOTAL 40. m	36k		

Kindly refer to Chapter 3 for an elaborate description of the project, which provides details on the nature and scale of the proposed intervention works for all locations.

1.3 Rationale for the Intervention Works

As the Government of Nigeria plans to improve rural access and agricultural marketing in selected participating states through the implementation of RAAMP, a major input will be to carryout intervention/civil works to improve the conditions of rural roads within its project locations. Importantly, underdeveloped road networks increase transport costs and limit connectivity, making it difficult for local farmers to gain access to local and regional markets, both to

source key intermediate inputs, and to commercialize agricultural outputs⁴. Specifically, for the selected rural roads located in the 11 LGAs in Abia State, the issues of poor rural road conditions, will be addressed primarily by the proposed rehabilitation works outlined in Tables 1 and 2 in sub-section 1.2 above. Besides improving access to markets and other areas, the proposed works will help ensure adequate usage of rehabilitated rural roads, minimize post-harvest losses incurred by rural farmers as a result of transporting perishable food crops (e.g. leafy vegetables, tomatoes, fresh fruits, etc.) on dilapidated roads within some project communities (Sameke Junction – Amaraugboghu), reduce travel time by serving as a bypass for redirection of traffic congestions in major access roads (e.g. Ezeukwu – Ugwueke and Amaokwelu Alayi Junction – Amankalu – Akoli Imenyi, Bende LGA, etc.), improve road safety by ensuring that the risk of accident occurrence on these roads are reduced, while ensuring road integrity is sustained through routine inspection, maintenance and monitoring. This also implies that the intervention works will promote the streamlining of collaborative efforts between the AB-RAAMP PIU and relevant MDAs towards preventing recurrence of erosion – potholes, weathering and aggregation of loose debris on road surfaces. Essentially, the intervention works will also help in achieving aesthetic conditions of the rural roads, such that they are clean, void of deterioration and a state of being unkempt.

From an economic perspective, the rehabilitation of the proposed rural roads may affect the income of beneficiary communities and Project Affected Persons (PAPs) in a number of ways. Remarkably, the intervention works may directly and indirectly result in reductions in transport costs and transaction costs (obviously triggered by the rehabilitation of rural roads). The improved rural roads conditions will increase the supply of agricultural products between communities within the same LGAs and across other LGAs in Abia State. Correlatively, an increase in the supply of agricultural products resulting from the rehabilitation of the rural roads and potential affordability of transportation costs may see to an increase in consumption, as products are readily available and easy to transport to receiving markets, co-operatives, wholesale and retail stores etc. within and beyond the state.

Furthermore, since the rehabilitation will be carried out in rural roads (bordering and connecting communities and LGAs), it thus presents opportunities to bring into perspective, sustainable E&S management practices during the carrying out of the distinctive intervention works (specifically, upgrades and spot improvement). Understanding this could positively strengthen and improve E&S organizational systems (directly and indirectly) within the FDRD, FPMU, SPIU and relevant MDAs, as concerns managing and monitoring activities within the project corridors. To a certain extent, the roads rehabilitation will enable the GoN, fulfil part of its obligations in achieving the Sustainable Development Goals (SDG Goal 9: Industry, Innovation and Infrastructure – Target 1⁵ and 3⁶ and SDG Goal 11: Sustainable Cities and Communities - Targets⁷ 2,4,5,8 and 9). Finally, the activity will enable partial enhancement

of the agriculture and rural development sector, by improving the agricultural supply chain; promoting opportunities for private sector participation (at the grassroots, LGA and state levels), investment in agriculture and agribusiness as well as the likelihood of promoting improvement in economic activities in rural areas beyond agriculture such as fishing, mining, lumbering/logging amongst many.

⁷ SDG 11-Target 2: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons

Target 4: Strengthen efforts to protect and safeguard the world's cultural and natural heritage

⁴ The strategic importance of the agricultural sector to the Nigerian economy cannot be over-emphasized. Its contribution to GDP hovered between 24.45% in 2016 and 25.70% in 2020 (NBS, 2021). The sector contributed about 30% to Nigeria's GDP in the third quarter of 2021 and 34.66% of total employment in 2020 (NBS, 2021)

⁵ SDG 9-Target 1: Promote inclusive and sustainable industrialization and, by 2030, significantly raise industry's share of employment and gross domestic product, in line with national circumstances, and double its share in least developed countries.

⁶ SDG 9-Target 3: Increase the access of small-scale industrial and other enterprises, in particular in developing countries, to financial services, including affordable credit, and their integration into value chains and markets.

SDG 11-Target 5: By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations.

SDG 11-Target 8: Support positive economic, social and environmental links between urban, peri-urban and rural areas by strengthening national and regional development planning SDG 11-Target 9: By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, holistic disaster risk management at all levels

Kindly refer to Chapter 6 of the Inception Report for the Technical Approach and Methodology—including a comprehensive description of the Scope of Works and how the ESMP will respond to the specific tasks as contained in the ToR.

1.4 Objectives of the ESMP

The overarching objective of the ESMP is to ensure that the negative E&S impacts likely to arise from the intervention works are addressed and appropriate mitigation measures integrated into project implementation and operation in order to protect human and environmental health. According to the WB Safeguard Policies and Guidelines, ESMPs are safeguard instruments designed to provide site-specific mitigation measures for potential adverse E&S impacts of mainly **Category B** projects, where envisaged impacts are likely to be site-specific, short-term, localized, direct and reversible. Additionally, the objective is consistent with the Terms of Reference (ToR) for the ESMP attached as Annex 1 of this Report.

1.5 Rationale for the ESMP

As mentioned previously, according to the World Bank Environmental Assessment (EA) screening criteria, the project has been identified as **Category B** meaning that impacts will be site-specific and manageable (the activities will involve minimal adverse social or environmental impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures). For site-specific projects such as this, the most suitable EA safeguard instrument is an ESMP. The proposed sub-projects comprise essentially, civil/earth works which will be carried out mainly within and across communities/villages and limited to the surfaces of rural roads and adjoining infrastructures such as culverts already identified and selected by the AB-RAAMP. These activities are likely to result in some adverse E&S risks and impacts thus triggering the World Bank's Operational Policy on Environmental Assessment – OP 4.01 (Refer to Chapter 2 for Summary of all triggered World Bank Environmental and Social Safeguard Policies). The ESMP will identify the adverse E&S impacts of the proposed rural roads rehabilitation intervention works and define the roles and responsibilities of all critical stakeholders throughout the project lifecycle in order to ensure that mitigation measures including cost estimates are implemented and overall sustainability of the project is assured.

CHAPTER TWO

LEGAL AND ADMINISTRATIVE FRAMEWORK

The Environmental and Social Management Framework (ESMF) prepared for the Rural Access and Agricultural Marketing Project (RAAMP) already highlights all specific relevant policies, legal and regulatory frameworks including the administrative structures for management and implementation of the Project in Nigeria. However, some other policies and state level legal and administrative frameworks applicable to the project and the intervention works to be implemented by the AB-RAAMP are highlighted in this Chapter.

The key legal and regulatory framework guiding agriculture and rural development in Nigeria among others include; Nigeria Agricultural Policy (2001), National Policy on Integrated Rural Development (NPIRD) (2001), and Agricultural Promotion Policy (2016); while the Federal Environmental Laws, Regulations and Guidelines are applied to ensure international best practices in rural roads development projects with due considerations on the safety and health of the environment.

2.1 Legal and Regulatory Frameworks

2.1.1 Federal Ministry of Environment (FMEnv) Regulations and Guidelines

The following are the applicable regulations, guidelines and standards of the FMEnv that affect the rehabilitation of rural roads; and specifically, RAAMP.

- Environmental Impact Assessment (EIA) ACT CAP E12. LFN 2004
- National guidelines for EIA CAP E12. LFN of 2004: Sectoral Guideline for Infrastructure Development Projects
- National Policy on the Environment, (2016)
- National Guideline and Standard for Environmental Pollution Control (1991)
- National Environmental (Noise Standards and Control) Regulations, (2009)
- National Environmental (Ozone Layer Protection) Regulations, (2009)
- National Environmental (Sanitation and Wastes Control) Regulations, (2009)
- National Environmental (Soil Erosion and Flood Control) Regulations (2011)
- National Environmental (Surface Water and Groundwater Quality Control) Regulations (2011)

2.1.2 National Regulations and Guidelines Targeted at Agriculture and Rural Development Some important national regulations relevant to the RAAMP are highlighted in Table 3 below.

Table 3: Agriculture and Rural Development Sector Regulations

S/N	Policy/Regulation/Guidelines	Summary
1.	National Policy on Integrated Rural Development (NPIRD) (2001)	The objectives of the NPIRD include: reducing poverty, increasing productivity, reducing unemployment, improving rural and urban food security and promoting competitiveness. The National Policy on Integrated Rural Development (NPIRD) envisions the rural economy as a mainstream component of national agricultural and rural development. The agricultural policy area of NPIRD centres on the provision of increased investment in agricultural research and extension services in support of the smallholder farmer. The strategies enunciated in the Policy include: promotion of rural productive activities, supportive human resources development and utilization (health and population; culture and social development; education, technology and skills development; research and extension services). Also included is the creation of enabling rural infrastructure; special programmes for target groups.
2.	Nigeria's Agricultural Policy (2001) Updated	Provides the framework for the implementation of programmes and guidelines for agricultural development. The overarching objectives of the policy are: The achievement of self-sufficiency in basic food supply and attainment of food security; Increased production of agricultural raw materials for industries; Eradication of poverty; Development of the rural economy; and Protection of environment.
3.	Agricultural Promotion Policy (APP) (2016-2020)	The policy objectives for the period 2016–2020 are to: Grow the integrated agriculture sector twice the average Nigerian GDP for 2016–2020; Integrate agricultural commodity value chains into the broader supply chain of Nigerian and global industry, driving job growth, increasing the contribution of agriculture to wealth creation, and enhancing the capacity of the country to earn foreign exchange from agricultural exports; Promote the responsible use of land, water and other natural resources to create a vibrant agricultural sector, offering employment and livelihood for a growing population; Facilitate the government's capacity to meet its obligations to Nigerians on food security, food safety and quality nutrition, and Create a mechanism for improved governance of agriculture by the supervising institutions, and improving quality of engagement between the Federal and State Governments.
4.	Agricultural and Rural Management Training Institute Act (Cap A10 LFN 2004)	This Act makes provisions for detailed identification of management training needs in agriculture and rural development organisations as well as the development and implementation of training programmes to meet the needs of management teams in the agricultural and rural development sector of the Nigerian economy
5.	Nigerian Agricultural Insurance Corporation (NAIC) Act Cap. N89 LFN 2004	The Act seeks to provide a scheme to protect the Nigerian farmer from the effect of natural hazards by introducing measures which ensures sufficient indemnity to keep the farmer in business and to establish the Nigerian Agricultural Insurance Corporation. This Corporation is responsible for the implementation, management, and administration of the Agricultural Insurance Scheme in Nigeria.
6.	State Agricultural Policy (1999)	As established in Schedule II, 1999 Constitution of the Federal Republic of Nigeria. Every federal state may have its own agricultural policy and accords priority to crops that have comparable advantages, but in most cases state agricultural policy mirrors, but does not contradict, the Federal Government Agricultural Policy.
7.	National Agricultural Land Development Authority (NALDA) Act (2016)	The National Agricultural Land Development Authority Act seeks to provide strategic public support for land and development by establishing a corporate body known as the National Agricultural Land Development Authority.

S/N	Policy/Regulation/Guidelines	Summary
8.	National Agricultural Technology and Innovation Policy (NATIP) (2022 – 2027)	Some specific objectives of NATIP are to: i. Promote knowledge generation and dissemination to agricultural value chain actors by strengthening agricultural research, innovation and extension service delivery; ii. Deploy appropriate technologies and Good Agricultural Practices (GAP) for a rapid increase in production, processing and marketing of crops, fisheries, and livestock for domestic and international markets; iii. Support the evolution of Agricultural Development Fund (ADF) into a Mega Agency to overcome agricultural funding inadequacies and fast track rural development; iv. Increase access to agricultural finance, rural microfinance and promotion of agricultural insurance with active private sector participation; v. Increase access to agricultural and through land development and rural Infrastructural development to improve the livelihood and community resilience of rural dwellers; vi. Reduce malnutrition and improve nutritional security through improved food systems; vii. Improve the security of agricultural land to create enabling environment for agricultural investment;
9.	National Crop Varieties and Livestock Breeds (Registration, etc.) Act Cap. N27 LFN 2004	The Act seeks to provide for detailed identification of management training needs in agriculture and rural development organization, and to develop and implement training programmes to meet the needs of managers in the agricultural and rural development sector of the Nigerian economy.
10.	National Agricultural Seeds Act Cap. N5 Vol. 10 LFN 2004	The Act seeks to regulate the development of the national seed system by establishing a council known as the National Agricultural Seed Council. This Council is given the responsibility for the overall policy guidelines and monitoring of the development of the national seed system. The Act aims at analyzing and proposing programs, policies and actions regarding seed development as well as the seed industry. The overall objective of the Act is to harmonize the seed industry with other agricultural input industry in order to meet the increasing demand of the agricultural sector.
11.	Agricultural Research Council of Nigeria Act Cap. A12 LFN 2004:	The Agricultural Research Council of Nigeria Act provides for the establishment of research institute by the Council. To this end, Nigeria has quite a number of agricultural institutions scattered all over the country such as the International Livestock Research Institute, the Federal University of Agriculture, Abeokuta, the National Root Crop Research Institute, National Agricultural Extension and Research Liaison Services (NAERLS) etc.

Other relevant statutes and laws related to Environmental and Social Management in Rural Infrastructure Development include:

- Consumer Protection Council Act 66 (1992)
- Federal Solid and Hazardous Waste Management Regulations (1991)
- Harmful Waste (Special Criminal Provisions) Act (2004)
- The Land Use Act CAP L5 LFN 2004
- National Environmental Protection (Effluent Limitation) Regulations (1991)
- National Environmental Protection (Management of Solid and Hazardous Wastes) Regulations, (1991)
- National Environmental Protection (Pollution Abatement in Industries and Facilities Generating Wastes) Regulation, (1991)
- National Environmental Standards and Regulations, Enforcement Agency (NESREA) Act, (2007)
- National Gender Policy (2008)
- National Guidelines and Standards for Water Quality (1999)
- National Guidelines on Environmental Audit in Nigeria (1999)
- National Guidelines on Environmental Management Systems (EMS) (1999)
- Nigeria Labour Law (2004)

- National Occupational Health and Safety Policy (2020)
- National Health Act (NHA 2014)
- Rehabilitation, Reconstruction and Development Act, 1990
- Social Development Act (1974)
- Standard Organization of Nigeria (SON) Act No. 14 of 2015
- The Child Rights Act (2003)
- The Factories Acts 1990 being implemented by the Factories Inspectorate Division of Federal Ministry of Labour and Employment (FMLE).
- Workers Compensation Act (2010)

International Treaties/Agreements/Conventions Applicable to RAAMP and the Intervention Works

- Bamako Convention on Ban on the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa (1991)
- Basel Convention on the control of Transboundary Movement of Hazardous Wastes and their Disposal (1991)
- United Nation World Summit on Sustainable Development, (2002)
- United Nations Framework Convention on Climate Change (UNFCCC), (1992)
- Agreement establishing the International Fund for Agricultural Development (1976)

2.1.3 International Labour Organization Treaties/Agreements/Conventions Ratified by Nigeria and Applicable to OHS, Labour and Working Conditions

- Abolition of Forced Labour Convention, 1957 (No. 105)
- Convention concerning Safety in the use of Chemicals at Work (Entry into force: 04 Nov 1993) Adoption: Geneva, 77th ILC session (25 Jun 1990) - Status: Up-to-date instrument (Technical Convention)
- Equality of Treatment (Accident Compensation) Convention, 1925 (No. 19)
- Forced Labour Convention, 1930 (No. 29)
- ILO Convention on the Safety of Chemicals at the Workplace, 1990 (No.170)
- Minimum Age Convention, 1973 (No 138)
- Occupational Health Services Convention, 1985 (No.161)
- Occupational Safety and Health Convention (1981) and its Protocol of 2002
- Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187)
- Violence and Harassment Convention, 2019 (No. 190)
- Vocational Rehabilitation and Employment (Disabled Persons) Convention, 1983 (No 159)
- Worst Forms of Child Labour Convention, 1999 (No. 182)

2.1.4 Gender Based Violence (GBV) – Relevance, Legal and Policy Importance in Nigeria 2.1.4.1 Nigeria Legal and Regulatory Framework on GBV

The institutional champion of women's and children's rights and GBV issues within the government is the **Federal Ministry of Women Affairs and Social Development (FMWASD)**. But it has limited influence on sectoral ministries who need to enforce policy, insufficient budgetary resources⁸ and insufficient institutional capacity to enact its mandate.

The regulatory framework to address both GBV, SEA and Violence Against Children (VAC) is uneven because the Nigerian legal system is plural, and different legal systems co-exist, namely, the statutory law, Sharia law in the northern regions, and customary law in rural areas. The simultaneous application of this three-tier system creates differentiated degrees of protection to women's and children's rights⁹ which varies in every state and its enforcement is weak. There is a lack of clear mandates regarding which institutions oversee child protection and the design and implementation of violence prevention strategies and provision of services. Insufficient budget allocation both at national and state levels, coupled with inadequately trained and staffed structures to provide social welfare, justice, education and health services that are women, child and survivor-centred. While efforts to provide GBV

⁸ <u>UN Women</u> data from 2011.

survivors with basic response services is concentrated in the NE by international non-governmental organizations or the United Nation (UN) system, there are very limited government or non-governmental services in the rest of the country, those that exist are for the most part unregulated, uncoordinated and unpredictable.¹⁰ This is aggravated by a generalized lack of trust of citizens, particularly women, in the criminal justice system to enforce the existing laws. Moreover, lack of awareness of laws and knowledge of rights, amidst a context dominated by social norms that legitimate the perpetration of abuse, stigma and underreporting, results in the consequent impunity of perpetrators, possible re-victimization of survivors and the reproduction of the cycle of violence.

Two key national laws address GBV, the Child Rights Act (CRA, 2003), and the Violence Against Persons Prohibition Act (VAPP, 2015). While VAPP has been passed by all states and the FCT except Kano State, CRA has been passed in 35 states including the FCT except Gombe state. Where laws are domesticated, implementation remains weak as institutional capacities are weak (social welfare, police, family courts). In practice, the legal and judicial systems provide women and children with little protection against violence, and timely and adequate support services are scarce and often ill-equipped to respond to survivors' needs.

Nigeria has ratified or acceded to the core international human rights treaties and is a party to the major regional human rights instrument which obliged States to respect, protect and fulfil human rights of all persons within the territory and subject to the jurisdiction of the State, without discrimination. Rape may violate several human rights obligations enshrined in the instruments ratified by Nigeria and is also a form of gender-based violence and a brutal manifestation of violence against women, children and men. In addition, bias and unfairness towards certain genders with regards employment; promotion, privacy in using bathrooms or restrooms and granting of work-related benefits, may also communicate gender-based violence. As a State party to the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) and the Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (the "Maputo Protocol"), Nigeria has made legally binding commitments to exercise due diligence to combat gender-based violence and discrimination and has signed international treaties as such. These include:

- Convention concerning the Prohibition and Immediate Action for the Elimination of the worst forms of Child Labour (2002)
- Discrimination (Employment and Occupation) Convention
- Equality of Treatment (Accident Compensation) Convention (1925)
- International Convention on the Elimination of All Forms of Racial Discrimination (1976)
- Optional Protocol to the Convention on the Rights of Persons with Disabilities (2007)
- The Convention on the Elimination of All Forms of Discrimination against Women (CEDAW) (1985),
- The Convention on the Rights of Persons with Disabilities (CRPD) (2012)
- The International Covenant on Civil and Political Rights (ICCPR) (2004);
- The International Covenant on Economic, Social and Cultural Rights (ICESCR) (2004)

Regional Treaties Relevant to GBV, SEA, VAC and People Living with Disabilities

- Abolition of Forced Labour Convention (1957)
- Convention Against Torture & other Cruel, Inhuman or Degrading Treatment or Punishment (CAT) 2001
- Convention on the Rights of Persons with Disabilities (2007)
- The Convention on the Rights of the Child (CRC) (1990),
- The National Action Plan for the Implementation of United Nations Security Council Resolution 1325 (2009);
- The Protocol to the African Commission on Human and People's Rights (ACHPR) on the Rights of Women in Africa (the "Maputo Protocol") (2007).

In addition, Nigeria also has obligations to protect the environment through various commitments to the African Union, the Economic Community of West African States and the Commonwealth. It is also committed through relations with the European Community under the Lome IV Convention.

2.2 Triggered World Bank Safeguard Policies

Four (4) Safeguard Policies have been triggered for RAAMP namely: Environmental Assessment (OP 4.01), Natural Habitats (OP 4.04), Physical Cultural Resources (OP 4.11), and Involuntary Resettlement (OP 4.12).

2.2.1 Environmental Assessment (OP 4.01)

This Operational Policy is triggered. The Bank requires Environmental Assessment (EA) of projects proposed for Bank financing to help ensure that they are environmentally sound and sustainable, thereby improving decision making. With regards to RAAMP, activities involving road rehabilitation may result in an increase in fugitive dust, carbon emissions from incoming vehicles or machines/equipment (generators) running on fossil fuels, noise, labour influx, SEA/SH. Furthermore, there will be generation of wastes, particularly Construction and Demolition (CD) wastes (including but not limited to disused metals, woods, broken concrete, excavated soil, plastics, etc.), and biodegradable food wastes. Depending on the nature of these waste, quantity and degree of exposure, they may pose potential adverse E&S risks and impacts. In this regard, the Bank requires the borrower to conduct an E&S assessment. Specifically, for the intervention works, this ESMP shall be prepared in a manner that is proportionate to the nature and scale of the identified E&S risks and impacts.

2.2.2 Natural Habitat (OP 4.04)

This policy promotes the protection and conservation of the natural home or environment of an animal, plant, or other organism, as a means to enhance long-term sustainable development. The general landscape of Abia state is largely filled with vegetation which include grasses, shrubs and tall trees (Tropical rainforests and woodland savannah). Vegetation largely borders or has encroached into the original dimensions of the selected roads proposed for rehabilitation; some of this vegetation being essential for feeding livestock, traditional medicine, food and other uses. Vegetation/Land clearing in order to permit suitable ground-area¹¹ for rehabilitation works, siting of equipment staging areas and campsites may pose adverse E&S risks. This is quite notable considering that in the project locations and

wider southern regions of Nigeria, forests are believed to play a huge role in providing communities with unique raw

materials and commodities that distinguish their identity, customs and way of life. Additionally, fresh water bodies within the vicinity of the project locations may be impacted by sediment runoff and waste which may affect aquatic life therefore OP 4.04 is triggered and would be addressed in the ESMP report through the proffering of mitigation measures and other best environmental practices during and after the project.

2.2.3 Physical Cultural Resources (OP 4.11)

This policy protects i) Cultural property - monuments, structures, works of art, or sites of significance, and are defined as sites and structures having archaeological, historical, architectural, or religious significance and ii) Natural sites with cultural values. This includes cemeteries, graveyards, sacred trees, holy grounds, historic artifacts, shrines, etc. In Abia State, where cultural practices and sites of cultural significance and heritage can be found across the project locations; and are prone to potential adverse impacts associated with the proposed intervention works, OP 4.11 is triggered. Some infrastructural development activities such as site clearing, excavations and earth works may result in the moving of shrines and sacred spots (in some instances, designs will be reviewed to achieve "Mitigation by Avoidance"). In line with this, the ESMP will incorporate annexures for Physical Cultural Resources Management Plan (PCRMP) to guide the AB-RAAMP PIU and their Contractors during civil works. The proper, diligent and apt implementation of PCRMP to be contained in the ESMP report is expected to provide guidelines for chance find procedures, mitigate adverse social impacts such as displeasure and ethnic conflicts associated with PCRs. This will achieve addressing concerns triggered by OP 4.11.

2.2.4 Involuntary Resettlement (OP 4.12)

This policy takes into consideration all projects requiring land acquisition and/or resettlement in the event that there is encroachment on people's land, right of way, assets and livelihood activities. Most of the infrastructural development activities will not result in major losses or acquisition of land or restriction to sources of livelihoods. However, it is triggered because some rural roads where intervention works will be undertaken have been encroached by roadside petty trading activities, hawkers and farms consisting of economic trees and cash crops. Some roads which may pass through communities will require expansions in terms of width and length; this may

¹¹ Ground Area means the total surface area of land that would be converted to an impervious surface by the proposed project. It includes structures, parking lots, approaches, service facilities, appurtenant structures, and recreational facilities.

result in some forms of physical and economic displacement. Importantly, the proposed intervention works will require Contractors to enter agreements for land lease for the purpose of borrow pits. It is noteworthy to state that a standalone Resettlement Action Plan (RAP) for the intervention works to be carried out in the 37 rural roads is being prepared by the AB-RAAMP PIU to address these issues in line with OP 4.12.

2.3 Strategies and Policy Directives on Agriculture and Rural

Development in Abia State

The government of Abia State has, over the years, implemented strategies, project and programs aimed at fostering rural development and enhancing the agricultural sector. Considering that a significant proportion of the state's citizens are engaged in various forms of agricultural activities, these initiatives seek to promote sustainable growth and improve livelihoods within the agricultural community. Some of these strategies/initiatives include:

2.3.1 Abia State Special Agro-Processing Zone (SAPZ)

The Abia State Government, through its Ministry of Agriculture, is committed to improving food production and reducing poverty by prioritizing agricultural development. The state plans to:

- Increase cassava production and establish a mega oil palm plantation and processing plant in Owaza.
- Develop cocoa, rice, soybean, and maize plantations in Bende Local Government Area.
- Promote value addition for these crops to boost export revenues and support import substitution.

This initiative aims to leverage Federal Government programs, including the African Development Bank (AfDB)supported Special Agro-Industrial Processing Zones (SAPZ), to enhance productivity, value addition, market access, and private sector investment. The program focuses on scaling agricultural activities, supporting smallholder farmers (especially women and youth), and complementing other infrastructure projects in power, transport, water, and agriculture.

Aim

To enhance agricultural productivity, increase food security, and reduce poverty in Abia State through strategic investments in agro-industrial activities and value chain development.

Objectives

- Increase Agricultural Output: Expand cassava, cocoa, rice, soybean, maize, and oil palm production to boost food supply and export revenues.
- Enhance Value Addition: Establish processing facilities to improve the quality and marketability of agricultural products.
- Promote Private Sector Investment: Leverage existing infrastructure and attract private sector partnerships to support agro-industrial development.
- **Support Smallholder Farmers**: Facilitate access to markets, resources, and adaptive livelihood programs for smallholder farmers, with a focus on women and youth.
- Strengthen Infrastructure Synergy: Align agricultural initiatives with existing and planned infrastructure projects to maximize economic and social benefits.

2.3.2 Abia State Community and Social Development Agency (AB-CSDA)

The Abia Community and Social Development Agency (Abia CSDA) is a key institution under the Abia State Government, established to foster grassroots development and improve living conditions across communities in the state. From 2009 to 2021, the agency successfully executed the Community and Social Development Project (CSDP), which focused on empowering communities to identify and address their development needs. Central to the agency's approach was the adoption of the **Community-Driven Development (CDD) model**, a participatory strategy that places decision-making power and resources directly in the hands of community members. This approach enabled communities to actively prioritize, plan, and implement projects that addressed pressing local challenges, ranging from infrastructure improvements to the provision of basic services.

Through the Abia CSDA's initiatives, numerous communities experienced enhanced social and economic development, improved access to essential amenities, and increased capacity for self-reliance in addressing developmental issues. The agency remains committed to leveraging innovative strategies to sustain and expand community-driven growth in the state.

2.3.3 Abia Agricultural Development Programme

The Abia State Agricultural Development Programme (ADP) is a comprehensive initiative aimed at fostering agricultural growth, promoting non-agro businesses, and ensuring food security in the state. The program provides extensive support through various initiatives, including training, capacity building, and strategic collaborations. For instance, in September 2023, the ADP trained 50,000 farmers in organic agricultural practices to promote sustainable farming. It also conducts capacity-building activities such as seminars, workshops, and apprenticeship programs to help small-scale farmers enhance their skills and increase their income. Additionally, the ADP collaborates with other states to exchange best practices and improve agricultural productivity. Abia State, with its three agricultural zones— Aba, Umuahia, and Bende—boasts fertile soil and favorable growing conditions, making it ideal for cultivating key crops such as cassava, yam, maize, rice, palm oil, fruits, and vegetables. These efforts position the state as a prime hub for agricultural investment and development.

2.4 Administrative Structure for Agriculture and Rural Development

Sector in Nigeria

Federal Ministry of Agriculture and Rural Development (FMARD): The Ministry provides credible and timely information on government activities, programs and initiatives in the development of agriculture and food production; while creating an enabling technological environment for socio- economic development of the nation. Its twin responsibility is also in the areas of improving living conditions in rural communities, through investments in developmental initiatives targeted at enhancing, livelihoods, markets, transport and economic activities in rural communities across the nation.

Federal Department of Rural Development (FDRD): The FDRD has responsibility for formulating policies and strategies for rural development and for fostering integrated rural development. Its mandate is to accelerate the transformation of the nation's rural life and landscape in a coordinated and sustainable manner with a view to eradicate rural poverty, expand rural economic opportunities, enhance food security and integrate rural dwellers into the mainstream of national development. The FDRD, like the other departments, maintains offices in most states with little or no service linkages with the state ministries or ADPs.

Federal Department of Agriculture (FDA): The FDA has four technical divisions that implement federal government-supported programs at the state level and provide technical backstopping to State Ministries of Agriculture (SMoA), including ADPs.

Other Departments of the FMARD include:

- The Federal Department of Planning, Research and Statistics (FDPRS)
- The Federal Department of Agricultural Sciences (FDAS)
- The Federal Department of Fisheries (FDF)
- The Federal Department of Land Resources (FDLR)
- The Federal Department of Livestock and Pest Control Services (FDLPC)
- The Federal Department of Cooperatives (FDC)
- The Federal Department of Storage and Strategic Grain Reserve (FDSSGR)
- The Federal Department of Fertilizer (FDF)

2.5 Administrative Structure for RAAMP Implementation in Abia State

The administrative structure essential to the implementation of RAAMP in Abia State is:

Abia State Ministry of Poverty Alleviation and Social Protection

The ministry plays a crucial role in addressing poverty and social challenges within the state. The ministry focuses on initiatives that reduce poverty through employment generation, social welfare programs, and partnerships with local and international organizations. These efforts are tailored to enhance the living standards of vulnerable groups, including women, youth, and the elderly. Recent initiatives include collaboration with development partners like the

European Union (EU) and the International Labour Organization (ILO) to strengthen social protection systems. These partnerships aim to create a comprehensive social register and implement programs addressing multidimensional poverty, considering factors like wealth, education, and infrastructure access. Additionally, the ministry supports programs like free healthcare for indigent senior citizens, timely pension payments, and empowerment schemes for disadvantaged groups.

Institution Responsible for Environmental Management, Protection, Sanitation, and Waste Management Services in Abia State

The Abia State Environmental Protection Agency (ASEPA) is a governmental body under the Abia State Ministry of Environment dedicated to preserving and enhancing environmental quality across the state. Its mandate includes a wide range of responsibilities aimed at fostering a cleaner, healthier, and sustainable environment. ASEPA oversees the coordination and management of waste disposal and recycling systems, ensuring effective handling of both domestic and industrial waste. Additionally, the agency plays a critical role in controlling pollution by regulating activities that may negatively impact air, water, and soil quality. ASEPA is also tasked with enforcing environmental compliance, ensuring that individuals, businesses, and industries adhere to established environmental laws and standards. Through its initiatives, the agency seeks to mitigate environmental degradation, promote public awareness on environmental issues, and support sustainable development in Abia State.

2.6 Institutional Arrangements for the RAAMP

Federal Level Implementation: The FPMU under the Federal Ministry of Agricultural and Rural Development (FMARD) is responsible for the overall coordination, supervisory and monitoring of implementation programs and activities under the RAAMP in Nigeria. It provides oversight on behalf of the FMARD and Government of Nigeria (GoN) and provides updates on project implementation to the GoN, the World Bank (WB) and the French Development Agency (AFD). Apart from shouldering implementation activities at the federal level, the FPMU provides overall guidance and technical support to the SPIUs in participating states on the project implementation and are also responsible for due diligence processes. With regards E&S safeguards compliance and reporting; the FPMU has a safeguards unit comprising of an Environmental Safeguards Desk Officer, Social Safeguards Desk Officer, GBV/SEA Desk Officer and three Technical Assistance (TA) Consultants for Environment, Social Development and Gender Based Violence/ SEA respectively. The FPMU is led by the National Project Coordinator.

State Project Implementation Units (SPIU): At the state level, the SPIUs are established within a particularly selected or appropriate state ministry and have been set up in all 19 states comprising officials with varied competencies for implementation of day-to-day project activities, including rural road planning, development and maintenance, planning and management of agro-logistics interventions, safeguards (both social and environmental), GBV/SEA, Financial management (FM), procurement, Monitoring and Evaluation (M&E) and communication. The states have also recruited additional technical consultants to support state officials on various project related activities, mainly Environmental and Social safeguards and GBV/SEA risk management. In each of the participating states, a State Project Monitoring Committee (SPMC) is responsible for monitoring and oversight functions of the project. The SPIUs provides secretarial support to the SPMCs. The SPIUs report directly to the FPMU on issues related to project implementation through their State Project Coordinators (SPCs). See Figure 1 below for schematics on implementation arrangement for RAAAMP.



Table 4: RAAMP Project Components and Description of Component Activities (Source: RAAMP Project AppraisalDocument)

Project Components	Description	Component Activity Details
Component A: Improvement of Rural Access and Trading Infrastructure	The component will have two sub-components: Sub-Component A1 – Major Civil Works. Support to major civil works: upgrading of rural roads and the construction of short-span (largely up to 15 meters) cross-drainage structures (culverts/bridges) on rural roads, and the physical improvement of the existing agro-logistics centers (rural markets).; and Sub-Component A2 – Consultancies and Supervision. Support to the supervision and consultancy costs linked to the civil works.	 Physical improvement of Rural Access Infrastructure: rural roads (approximately 1,625 km;) and bridges/culverts of generally up to 15m clear span (approximately 1,040 m); Physical improvement of Agro-logistics Centres (approximately 65); Consultancy and supervision support for the planning, design, implementation and supervision of rural transport infrastructure and agro-logistics centers (the PIM provides details).
Component B: Asset Management, Agro-logistics Performance Enhancement and Sector Reform.	 This component comprises three sub-components: Sub-Component B1 – Other Civil Works. Support the maintenance and spot improvement of rural roads; Sub-Component B2 – Support for Improving Agro-logistics Activities. Support to Agro-logistics performance enhancement activities. Including support to farms and cooperatives to reduce post-harvest losses and support to the small and medium-sized enterprises (SMEs) at the agrologistics centers; and Sub-Component A1 – Consultancies Studies and Supervision. This sub-component will provide technical assistance (TA) support to state-level road sector reforms activities, to the establishment of an asset management system, and to the design and supervision of civil works under the component. 	 Maintenance and spot improvement of rural roads: Routine maintenance (approximately 9,100 km/year); Backlog maintenance/ rehabilitation (approximately 2,600 km); Spot Improvement (approximately 5,850 km); Performance-based Maintenance Contract Piloting (approximately 260 km). Implementation of activities to enhance agrologistics performance: Implementation of farm/cooperative level post-harvest agrologistics study recommendations; Implementation of activities to support SMEs at the agrologistics centers. Consultancies, studies and supervision support (the PIM provides details): Consultancies and studies to support sector reform activities; Consultancies. studies and supervision (road maintenance and spot improvement); Consultancies and studies (agrologistics activities).
Component C: Institutional Development, Project Management and Risk Mitigation.	The component has two sub-components. Sub-Component C1: Institutional Development and Project Management. This sub-component will involve support to institutional development of the rural transport, trading infrastructure and agro- logistics activities, maintenance and management. It will also support project operating costs, TA consultancies, training and study tours, project monitoring and impact evaluation activities. Preparation activities connected to any future rural transport and trading projects, including studies and TA to incorporate new states within the proposed project, will be supported by the sub-component. Sub-Component C2: Risk Mitigation and Resiliency. This sub-component will support project risk mitigation and resiliency activities, including sexual exploitation and abuse (SEA), gender, grievance redressal, rural road safety and climate resiliency of rural roads.	 Goods purchase and supporting logistics and operating costs. Training and study tours. Technical Assistance (the PIM provides details). Support activities linked to risk mitigation and resiliency: Including Support to GBV/SEA, Grievance Redressal and Citizen Participation; related risk mitigation activities; Support to rural road safety activities; Support to rural road climate resiliency activities
Component D: Institutional Development, Project Management and Risk Mitigation.	The component will address any unforeseen emergency infrastructure needs following a natural disaster.	

3. Description of the Proposed Road Rehabilitation Activities

The AB-RAAMP proposes to carryout intervention works on 37 rural roads totaling 133.14km. Precisely, the proposed intervention works shall include: Spot Improvement (40.36km) and Rural Road Upgrades (92.78km) under the Phase 2 work package. The intervention works/sub-projects shall be situated in various rural communities (at least 110) located within 11 LGAs across the three senatorial districts of Abia State. The phase 2 work package shall involve civil works as follows:

- a) Rural Roads Upgrade: These intervention works will be carried out on 25 roads totaling 92.78km and cutting across 10 LGAs. The roads to be rehabilitated under this work package have been divided into five (5) Lots. Specifically, the civil works to be undertaken will include:
 - Site clearance
 - Earthworks (i.e. removal of unsuitable material and filling of lateritic material)
 - Excavation of fill material from approved borrow pits.
 - Re-sealing/overlay of cracks and eroded carriageway sections
 - Potholes patching
 - Pavement works (i.e. construction of sub-base and base courses, priming, and thin asphalting).
 - Improvement/provision of culverts/drains/slopes/embankments/other structures.
 - Complete or slight resurfacing
 - Widening of shoulders of the existing road.
 - Miscellaneous works (i.e. provision of road markings, signs and other infrastructure).

Table 5 below, shows a summary of the roads earmarked for upgrade and other relevant details.

Table	5:	List	of	Roads	selected	for	Upgrade

SN	LOT	LGA	ROAD NAME	LENGTH (KM)
1.	1.	Arochukwu	Achara – Okpo – Nkporo – Ututu	10.39km
2.			Umeye I – Umeye II	1.40km
3.			Obinto – Atani Road	1.20km
4.		Ohafia	Okagwe – Nkwebi Onwuwanyanwu	4.30km
5.	2	Bende	Sameke Junction – Amaraugboghu	2.46km
6.		Umu Nneochi	Oba Junction – Umumaduako – Umumezie	2.55km
7.			Orie Ngodo Market - Obinohia Umudim – Lomara	5.20km
8.	3.	Isialangwa North	Amorji – Ngbedeala – Ntigha Umukalu – Mbawsi	4.45km
9.			Amorji Market Road – Amorji Junction	1.61km
10.			Ogbagala Junction – Amaugba	0.49km
11			Nbawsi – Agburuike – Umuomaighiukwu	5.49km
12		Isialangwa South Amiyi Nvosi – Ometeghi – Umuada Nvosi – Omuapu Road		5.60km
13			Nkwo Ebe – Umunko – Umuakwu	3.62km
14			Umunkpeyi – Amachi – Umuaro	2.70km
15	5	Umuahia South	Eziama – Amaibo Ring Road	3.95km

SN	LOT	LGA	ROAD NAME	LENGTH (KM)
16			Agalaba Ise – Ahiamorie – Umuamadi – Amalaubi – Umuokereke	6.00km
17			Apumiri – Avo – Amibo Express	1.52km
18			Umuawoli Road	0.61km
19			Ogbodioriloku – Umuchiche – Mbaraukwu	4.40km
20		Umuahia North	Agalabano – Umuhu Central School – Ekeoba	1.36km
21	6	Obingwa	Nkwo Elechi Market – Umueme Road	2.11km
22			Umuagu Ohuru Amaisii – Osaa Ukwu – Itungwa	9.30km
23			Umuariama Ahiaba Ubi – Nkwo Elechi	2.98km
24			Nkwo Elechi Umuagu Umuorukwu Osusu Amaukwa Road	3.85km
25		Ugwunagbo	Asa Umunka – Umugo – Ameyi Oza – Ozata – Ugwati Asa	5.24km
TOTAL 92.				92.78km

b) Spot Improvement Work Packages: These intervention works will be carried out on 12 roads totaling 40.36km and cutting across 4 LGAs. The roads to be rehabilitated under this work package have been divided into three (3) Lots. Specifically, the civil works to be undertaken are similar to the upgrade works. These include:

- Site clearance
- Earthworks (i.e. removal of unsuitable material and filling of lateritic material)
- Excavation of fill material from approved borrow pits.
- Re-sealing/overlay of cracks and eroded carriageway sections
- Potholes patching
- Pavement works (i.e. construction of sub-base and base courses, priming, and thin asphalting).
- Improvement/provision of CDSs or culverts/drains/slopes/embankments/other structures.
- Complete or slight resurfacing
- Widening of shoulders of the existing road.
- Miscellaneous works (i.e. provision of road markings, signs and other infrastructure).

Table 6 below, shows a summary of the roads earmarked for spot improvement and other relevant details.

Table 6: List of Roads selected for Spot Improvement

SN	LOT	LGA	ROAD NAME	LENGTH (KM)
1.	1.	Bende	Ozara Market Junction – Amaoku Alayi – Ugwueke Road	2.8km
2.			Amaokwelu Alayi Junction – Amankalu – Akoli Imenyi	6.2km
3.	2.	Bende	Alayi – Ezeukwu Road	9.6km
4.			Ezeukwu – Ugwueke Road	6.6km
5.	3.	Bende	Bende Etitiulo – Ubibia – Ndiwo – Itumbuzo – Okopedi – Ntalakwu	4.3km
6.		Umuahia North	Amaogwugwu Olololo Junction – Umukabia	0.67km

SN	LOT	LGA	ROAD NAME	LENGTH (KM)
7.			Umuafiaka – Umuokpara	2.6km
8.	1	Umuahia South	Old Umuahia (Divinity School) – Osah/Ohia Road	4.0km
9.			Ahiaukwu – Amangwo – Umuajata Umudere Amakama	1.54km
10.			Okpikpe Umuana – Ikot Ekpene Road	1.18km
11.	1	Aba South	Umuanyaso Road	0.5km
12.			Umuegwere Road	0.37km
		TOTAL		

3.3.1 Project Activities and Phases

Table 7 below provides the summary of the project phases, activities, staffing requirement and support facilities.

No.	Project Phase	Activities	Labour / Staffing	Support Facilities
1.	Pre-Construction	 Site marking and pegging, Site clearing including the demolition and relocation of structures within the RoW, Mobilization of equipment and workers to site, and staging of campsite Removal of topsoil/unsuitable materials Dewatering Creation of borrow pits 	 Skilled labour (estimate of 25 persons) Unskilled Labour (estimate of 80 – 100 persons) 	 Campsite Sanitary Facilities including 3 male and 3 female toilets (to be used throughout implementation) Staging Area for contractor equipment Borrow Pit Area Personal Protective Equipment (PPEs) First Aid kits Portable water (Ground water e.g. boreholes.) On-camp power source Waste mgt. facilities.
2.	Construction	 Earth works Excavation Construction of drainage structure, Desilting of silted existing drainages Earth filing (with lateritic material) and alignment Road surfacing Construction of CDS/Culverts and demolition of failed hydraulic structures Re-sealing/overlay of cracks and eroded carriageway sections Potholes patching Pavement works (i.e. construction of sub-base and base courses, priming, and thin asphalting). Improvement / provision of culverts/ drains /slopes/ embankments/other structures. Complete or slight resurfacing Widening of shoulders of the existing road. Miscellaneous works (i.e. provision of road markings, signs and other infrastructure). Reclamation of Borrow Pits 	 Skilled labour (estimate of 30 persons) Unskilled labour (estimate of 200 - 350 persons) 	 Campsite Healthcare facility (Important items should include - Automated External Defibrillator (AED), Glucometer, Inhalers and Nebulizers, Anti-venin, Multivitamins etc.) First aid kits (1 kit would serve 10 staff) Borrow pit Construction water supply Maintenance Workshop for contractor equipment Staging Area Sanitary Facilities (3 male and 3 female toilets) PPEs Potable water On-camp power source Waste management facilities, differentiated/colour-coded dino bins, etc.
3.	Demobilization	 Removal of construction equipment; Disposal of construction spoil and waste in general; Decommissioning of borrow pit Dismantling of temporary work camp of the contractor; and Waste management. Reclamation of Borrow Pits 	 Skilled labour (estimate 16 persons) Unskilled labour (estimate 40 – 100 persons) 	 First aid kits (1 kit would serve 10 staff) Sanitary Facilities (3 male and 3 female toilets) PPEs Portable water Waste management facilities
4.	Operation and Maintenance	 Using vehicles to access roads for the purpose of monitoring and other purposes. Identification of road defects Fixing of potholes De-siltation of culverts and drains Treatment such as crack sealing Removal of weeds 	 Skilled labour (estimate 3 nos) Unskilled labour (estimate 15 nos) 	Maintenance WorkshopMaintenance equipment

Table 7: Summary of the Project Phases, Activities, Staffing Requirement and Support Facilities.

3.4 Engineering Designs for Proposed Works

This section provides engineering designs for the two work packages as described in the engineering designs/design reports for the phase 2 interventions under AB-RAAMP. Excerpts for each are presented in the subsequent subsections below. It is noteworthy to state that the figures presented give a general overview of the engineering designs for intervention works to be carried out under each work package. Essentially, due to the number of the engineering designs and for the purpose of succinctness, a sample per work package has been presented below.

3.3.1 Spot Improvement

Design Standards and Parameters

The spot improvement roads will follow the Low Volume Road Manual (LVRM) specifications, adhering to Federal Ministry of Agriculture and Rural Development guidelines. The design prioritizes road safety, durability, and compliance with international standards, including hydrology and loading requirements for drainage structures. Key features of the road cross-sections include:

- Carriageway Width: 6 7m
- Shoulder Width: 0.5m on both sides
- Cross Fall (Carriageway): 3.5%
- Shoulder Slope: 4.0%
- Minimum Stopping Sight Distance: 85m
- Design Speed: 60km/h (adjustable for safety considerations).

Right-of-Way (ROW) Clearance

Efforts are made to minimize demolition within the ROW, especially as the roads pass through established communities. ROW dimensions include space for pavement, shoulders, side ditches, and slopes. Cross-sectional widths range from 7 - 8m to accommodate carriageways and hard shoulders (the proposed design is for the roads to have a width of 6 - 7m with a shoulder of 0.5m on each side).

Pavement Design

Spot improvement will be carried out on Paved, Partially Paved and Unpaved roads. The pavement structure includes:

- Sub-Base: 150mm thick approved lateritic material.
- Base: 150mm thick approved lateritic/crushed stone material.
- Surfacing: Thin asphalt (30mm) or equivalent, with options such as double surface dressing for extended service life.

Drainage Design

Two types of drains have been selected for the roads where spot improvement will be undertaken. These are a) Earth Drains and b) Concrete Line drains. See respective designs in Figures 3-5 below.



Figure 2: Restoring/Replacing of Base, Sub-base and Subgrade for Paved Roadway



Figure 4: Restoring/Replacement of Subgrade for Earth Road

Non-Motorized Transport (NMT)

The design will incorporate considerations for the safe and efficient movement of pedestrians, cyclists, and animaldrawn vehicles along and across the road. Where feasible, measurements or estimates of such movements will inform design decisions to ensure inclusivity and enhance road safety.

3.3.2 Upgrade

The pavement design for the upgrade roads shall ensure durability and environmental sustainability through specific compaction standards, thickness specifications, and materials. Pavement layers will be compacted to a density of at least 97% Proctor MDD, using an optimum moisture content of 10.7%. The road structure will consist of a 450mm total thickness, with a 50mm asphaltic concrete surface, a 200mm granular road base, and a 250mm granular subbase. Hot Mix Asphalt (HMA), composed mainly of aggregates and asphalt cement, will be used for the surface. Drainage systems will be implemented to prevent waterlogging and maintain road integrity. ROW dimensions include space for pavement, shoulders, side ditches, and slopes. Cross-sectional widths range from 7 – 8m to accommodate carriageways and hard shoulders (the proposed design is for the roads to have a width of 6 – 7m with a shoulder of 0.5m on each side). See Figures 6 and 7 for excerpt of engineering designs for Upgrades.




3.4 Proposed Campsite and Staging Area

To ensure ease of coordination of operations, a site office and campsite will be established for each Lot or Lot cluster, while each contractor will be required to identify a staging area for plants & equipment. In the interim, the AB-RAAMP PIU has engaged communities within the allocated Lots with regards the identification of suitable locations for campsites and staging areas. It has been agreed that Contractors will include aspects of campsite management and community health and safety in their C-ESMPs. Exact locations are not known at this point but will be secured by Contractors in liaison with community representatives prior to implementation. The locations for the establishment of the Contractors' campsites would be determined in consultation with the Resident Engineer, the AB-RAAMP PIU (importantly safeguard unit input is required) and the local communities, taking into account the following aspects.

Selection Condition/Criteria

- Located outside the protection zone of watercourses (100m) and wetlands
- Located within an acceptable distance from existing residential areas
- Not located in areas with intact vegetation
- Not located in or around a school premise
- The contractor must first obtain the necessary licenses and consents from the local authorities or from the owner of the needed area;
- The contractor must submit for the prior approval of the Resident Engineer, the implementation design and other project structures and specifications related to the camps and sites that are intended to be built;
- The contractor shall take all necessary measures and precautions to ensure that the execution of the works is carried out in accordance with environmental, legal and regulatory requirements, including those set out in this document; The contractor shall take all measures and precautions to avoid any disturbance in the local communities and among the users of the road, as a result of the project execution;
- All contractor workers (resident and non-resident) must sign code of conducts (sample in Annex 10) against GBV/SEA/SH and other illicit behaviours;
- The areas occupied by the camps and sites must be recovered at the end of the project, when the contractor is demobilized, through the replacement of previously existing conditions, unless other uses are intended;
- The contractor must ensure that Separate rooms will be provided for male and female workers and that all
 necessary sanitary facilities complying with World Health Organisation (WHO) regulations will be provided
 for workers to include but not limited to separate toilets for male and female, potable water with well-placed
 overhead tanks, wash basins and concrete and covered septic tanks.

As part of measures for the management of labour camps, Annex 11 presents a detailed Campsite Management Plan (CMP) detailing measures for avoiding, reducing and minimizing impacts related to labour camps. The CMP also provides the responsibilities for enforcing and monitoring measures are strictly adhered to.

3.5 Material Sourcing/Borrow Pits

Naturally occurring construction materials such as water, fine sand, laterite and aggregates are available in the project area; where applicable, approvals may be required for the extraction of raw materials. Materials proposed to be used are presented subsequently.

- a) Water: Water for the proposed road rehabilitation and construction works can be sourced from streams/ rivers within the vicinity of some of the project areas. However, the Contractor should ensure that sourcing should not be done from community water sourcing points in order not to strain and/or increase competition on the resource.
- b) Borrow Pits: The Contractor shall identify potential borrow pits in collaboration with the AB-RAAMP PIU with materials that possess suitability for the construction works and shall comply with the Borrow Pit Management Plan (BPMP) in Annex 8. Where existing borrow pits are to be used (See Section 4.3; Figure

15 for identified Existing Borrow Pits and locations), the Contractor shall mark out the area where it will carry out its excavation. The dimension should be documented by the resident engineer, Supervisory Consultant and Safeguards Unit of the AB-RAAMP PIU. This will provide baseline information for monitoring during reclamation of the borrow pits. Where an area is to be leased for the purpose of a new borrow pit, the agreement between the Contractor and land owner should be presented to the AB-RAAMP PIU and the dimensions of the area documented. Additionally, it is imperative that Contractor implement a progressive borrow pit reclamation plan, ensuring that areas not currently in use are reclaimed even before the completion of the intervention works, taking into account public safety considerations.

The AB-RAAMP PIU will ensure that the contractors comply with the following criteria to establish borrow pits:

- The proposed locations not to be located in agricultural fields
- Locations should not be near schools or other public facilities
- Locations not along the proposed road (at least 20m from the shoulder of the road).
- Sufficient quality of soil and suitable earth as adjudged to be available by material quality test to be submitted to the SPIU engineers
- The coordinates, pictures, borrow pit management and reclamation plan for each borrow pit to be submitted to the AB-RAAMP PIU
- The AB-RAAMP PIU to confirm reclamation of pits after use to close to pre-use state as much as possible including proper documentation and pictures. The unsuitable from the road scarification can be used to reclaim the pit, where this is not sufficient, contractors should have a plan and budget in place for reclamation and should be duly included in their bid documents. A sample BPMP is provided in Annex 8 of this ESMP.
- The AB-RAAMP PIU will ensure adequate and documented transactional agreement between the contractor and the landowners.
- c) Aggregates: Aggregates (coarse sand, gravel etc.) and laterite can be purchased, and stock piled from existing quarries in the local government areas of the State. The aggregates must meet the requirements stipulated in relevant sections of Federal Ministry of Works General Specification, Vol II (Roads and Bridges).

Sources of Energy: Energy will be provided for machines dependent on petroleum products, which include motor gasoline/Premium Motor Spirit (PMS), Dual-Purpose Kerosene (DPK), Automotive Gas Oil (AGO). Although the vehicles and machineries will operate on these fuel sources, keen attention will be paid to mitigation measures¹² to reduce pollution from vehicles and engines.

3.6 Staging Area

The staging area for siting of the project office, parking equipment and other machinery for the project works will be identified by the contractor in conjunction with the AB-RAAMP PIU and the community. The potential impacts that may be associated with the siting and operation of the staging area have been identified alongside mitigation measures and included in the ESMP Matrix in chapter 6 of this ESMP. The following criteria shall be adopted in identifying and managing the staging area:

Not to be located in or around school premises

Avoid Unnecessary Idling of project vehicles.

¹² Drive Less: Use of haulage services (public delivery trucks) for procurement and avoid extra trips, plan procurement trips ahead of time, use shorter routes.

Drive Wise: Drive efficiently – reduce vehicle speed (go easy on gas pedals and brakes); Regular Maintenance of Vehicles and Generators.

Choose Fuel Efficient Engines: Less pollution and cleaner burning gasoline vehicles; Diesel generators are the better choice where efficiency is concerned (petrol generators burn approximately 50% more energy over extended periods than diesel generators).

- Be located outside the protection zone of watercourses (100 m) and wetlands.
- Be located within an acceptable distance from existing residential areas.
- Not located in areas with intact vegetation
- The site must be cordoned off and access restricted to prevent accidents and unsupervised visitors
- The contractor must first obtain the necessary licenses and consents from the local authorities or from the owner of the needed area, including agreement on how the site should be handed over after use:
- The contractor must submit for the prior approval of the Resident Engineer, the design for the staging area that are intended to be built.
- The contractor shall take all measures and precautions to avoid any disturbance in the local communities and among the users of the road, as a result of the project execution;
- The Contractor will ensure that all necessary sanitary facilities shall be provided for workers expected on site:
 - ✓ Conducive office space with tables, chairs, drinking water, good aeration, etc.
 - ✓ Sanitary facilities for workers should include a shaded area for breaks and meals.
 - ✓ Separate toilets for male and female
 - ✓ Portable water with well-placed overhead tanks
 - ✓ Wash basins
 - ✓ Concrete and covered septic tanks

CHAPTER FOUR

PRELIMINARY DESCRIPTION OF THE PROJECT ENVIRONMENT

4.1 Background to the Project Environment

The proposed intervention works will be undertaken across eleven LGAs in the three (3) senatorial districts in Abia State (i.e. Abia North, Abia South and Abia Central Senatorial Districts). The maps of the coverage area of the project by LGAs as well as the rural roads to be rehabilitated are provided in Figures 2 and 3 below.



Figure 10: Map of Abia State Showing the Proposed Roads (for Upgrades and Spot Improvement), Including their LGAs according to Senatorial Districts



Table 8: Summary of General Socioeconomic Setting in Abia State

FEATURES	DESCRIPTION
Demography	Abia is the 32nd largest state by area and the 27th most populous with an estimated population of over 4.143 million (2022) (population growth rate of the state is estimated at 2.4%). Modern-day Abia State has been inhabited for years by various ethnic groups, but it is predominantly inhabited by the Igbo people.
Administration The Abia State Government is the supreme authority in Abia State, comprising the Executive, Judiciary arms. The Executive, led by the Governor, manages daily administration and bill supported by the Deputy Governor, the Secretary to the State Government, and 23 Com Governor also appoints special advisers through the Legislature. The Judiciary, a co-equal arm consists of 11 departments and a Judicial Service Commission responsible for promoting and as staff. Headed by the Chief Judge, who is appointed by the Governor with legislative ap constitutional authority to interpret and enforce laws.	
Religion	The people of Abia are predominantly Christians. Although, there are still a few who continue to practice African Traditional Religion (ATR) – beliefs include ancestor worship/shrines.
Education/Literacy Rate	Abia State, renowned for its emphasis on technical and vocational education, holds the fifth position in education rankings. The state's dedication to education is evident in its impressive literacy rate of 94.24%. Abia boasts nine tertiary institutions, underscoring its commitment to higher education. However, challenges persist, with a dropout rate of 26% and an out-of-school rate of 20% at the upper secondary level (Source: National Bureau of Statistics and UNICEF Education Fact Sheet, 2023).
Occupation/ Livelihood	The main occupations in Abia State, Nigeria, include agriculture, civil service, crude oil and natural gas production, and manufacturing. Agriculture, employing 70% of the workforce and contributing 27% to the state's GDP, focuses on crops such as yams, cassava, cocoa, and oil palm. Crude oil and natural gas production play a significant economic role, accounting for over 39% of the GDP. Additionally, Abia is a hub for local manufacturing and trading, particularly in clothing, footwear, beverages, agro-processing, and furniture, with Aba serving as the state's industrial center renowned for its skilled craftsmen.
Ethnic Groups	The Igbo people, the primary ethnic group in Abia State, Nigeria, comprise 95% of the population. Indigenous to southeastern Nigeria, they share cultural and linguistic ties with states like Anambra, Ebonyi, Enugu, and Imo, speaking a language from the Niger-Congo family. Minority groups in Abia include the Ibibio people, primarily in Arochukwu, the Ngwa people, who inhabit nine LGAs, and the Ndoki people, known for their rich culture of masquerading and folklore.
Cultural Festivals and Events	Abia State is home to vibrant cultural celebrations that highlight its rich heritage. The Ugwu Abia Festival , meaning "pride of Abia," is a unique event where delegations from all LGAs come together to showcase their regional traditions, making it the first festival of its kind in Nigeria. Another significant celebration is the Iwaji Festival (New Yam Festival), a beloved Igbo holiday held in early August after the harvest. This festival involves elaborate planning, thanksgiving, and the ceremonial cooking of the first yams to honor the deities for a fruitful season. In January, the Ekpe Festival in Umuahia brings the community to life with its centuries-old tradition of Ekpe masquerades performing ethnic dances, making it a lively start to the new year.

4.2 Summary of Site-Specific E&S Baseline Characteristics of the Project Location

This section outlines the site-specific E&S conditions at the project locations, covering all roads under the two work packages: spot improvement and road upgrades. A detailed summary of the E&S characteristics, including key sensitivities identified for each road, according to project lots, is presented in Tables 9 and 10 below.

Table 9: E&S Site-Specific Description of Some Roads Earmarked for Upgrade.

Lot s	Name of Road	GPS Coordinat	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
	Achara – Okpo – Nkporo – Ututu	Start Point N5.585117 E7.822830 Terminal N5.442848 E7.909276	The Achara – Okpo – Nkporo – Ututu Road is an unpaved earth track that branches off the Ohafia – Arochukwu Road, spanning approximately 10.39 km with an average width of 6m. At present, the road features a short section of concrete drainage on the left side, only for a few metres into it. The terrain is varied, with about 3 km characterized by steep, rocky slopes and rugged, undulating landscapes. These areas are highly eroded due to intense water runoff, further amplified by the absence of culverts and adequate drainage systems. Poor storm water management along this route has led to severe waterlogging during heavy rains, often rendering the road impassable. Local residents report waiting 3–4 days for floodwaters to recede before the road becomes usable. The road supports a mix of activities, including subsistence farming, livestock rearing, logging, and local transport, with sparse human settlements along its length. Notable villages connected by the road include Umuchiakuma, Amaetiti/Eleoha, Achara, Okpo Ihechiowa, Nkporo/Amiyi, Umuzomgbo, and Obinto-Ihechiowa. Due to its challenging terrain, the road is only accessible to motorbikes and heavy trucks, with small vehicles unable to navigate it. The rehabilitation of this road will significantly enhance connectivity between these seven farming communities and the Ohafia – Arochukwu Road, facilitating access to the Orie Obinto Market, a major agricultural trading hub that operates every four days. Two culturally significant landmarks were identified near the road: the <i>"Isionyemaobi"</i> sacred site and the <i>"Ndi Nduu"</i> shrine near the Apostolic Church, both of great importance to the Amafia-Amaetiti community. These sites serve as venues for prayers, rituals, and festivals. Additionally,	 Poor drainage and absence of culverts lead to waterlogging and runoff- induced erosion, making the road impassable after heavy rains. Need for careful alignment to avoid impacts on sacred sites and burial tombs. Dilapidated bridges over four seasonal streams require urgent rehabilitation to prevent accidents. 	
	Umeye I – Umeye II	Start Point N5.480323 82 E7.882471 37 Terminal N5.479344 09 E7.893846 47 47	The Umeye I – Umeye II Road is an unpaved rural road in Arochukwu LGA, Abia State, branching off the Arochukwu – Ohafia Road. Spanning approximately 1.36km with an existing width of about 7m approx., the road currently lacks a drainage. It serves as a critical link between the Ndiokpo and Umeye communities, whose residents are predominantly farmers relying on this route to transport their produce to the Orie Obinto Market. Traffic along the road is minimal and primarily consists of local commuters and farmers. Due to poor grading, the road is muddy during the rainy season. Moreover, water accumulation at the lowest points—approximately 450m	Water stagnation at low points during the rainy season requires culvert installation to improve drainage.	
	Obinto – Atani Road	Start Point N5.463165 4 E7.884575 8 Terminal N5.456943 39 E7.875651 3	The Obinto – Atani Road begins near the Awada Ndiole Village Hall, branching off the Arochukwu – Ohafia Road, and stretches 1.25km with an existing width of approximately 6m. The initial 300m is paved with asphalt, while the remainder transitions into an earth track. Civil work activities as well as the proposed expansion of the road shoulders close to the beginning of the earth section may lead to few physical and economic displacement and/or business disturbances (refer to RAP). The road serves as a vital connection to the semi-built up Atan Ihechiowa Community in Arochukwu LGA. To enhance accessibility and functionality, the road design needs to incorporate culverts or ramps over drainages to be installed across entrance into critical locations, such as the Community Primary School Atani and the Presbyterian Church of Nigeria Atan Parish, to aid vehicle entry or access into these public facilities situated along the road. Currently, vehicles can only access up to 1 km of the road, with the rest navigable only by foot or motorbikes. Despite previous interventions, such as the installation of a solar-powered borehole by NDDC, the	Culverts or ramps needed at critical locations to ensure safe vehicle access to public institutions.	

Lot s	Name of Road	GPS Coordinat	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
	Okagwe – Nkwebi Onwuwanyan wu	Start Point N5.686245 E7.804532 T-Junction Point N5.679825 E7.793094 Terminal N5.675638 E7.802682	The Okagwe – Nkwebi Onwunwanyanwu Road can be accessed through the Oboro – Okagwe – Nkwebi Road, in Ohafia LGA. The 2.7km stretch consists of failed surface-dressed sections and earth tracks, with an existing width of approximately 6m in the paved areas. The road includes a drainage system, though overgrown weeds and poor maintenance have compromised its functionality. Traffic along the road is minimal, dominated by motorbikes and non-motorized transport such as bicycles and pedestrians. It serves as a vital link for the Nkwebi Onwunwanyanwu community, connecting them to Okagwe Road. Near the road's midpoint, where it branches right toward its terminal, lies the <i>"Igboro Uduma"</i> sacred ground. While not directly adjacent to the road, care is required during civil works around this culturally significant site, as entry by non-indigenous individuals is forbidden. The road intersects the <i>"Iyi Uyim"</i> stream at coordinates N5.676432 E7.798824, a crucial resource for the community. The road leading to the stream is marked by several eroded sections accessible only by foot. Residents rely on the stream for	 Care is required during civil works activities around the "Igboro Uduma" sacred ground near the road to respect local traditions. The "lyi Uyim" stream, vital for community activities, needs a sturdy concrete 	
Lot 2	Sameke Junction – Amaraughog hu	Start Point N5.725202; E7.613757 Terminal N5.705472; E7.607828	The Sameke Junction–Amaraughoghu Road begins at the Abirirba–Amaokwe Road in Bende LGA and extends for 2.46km. The existing road is an unpaved earth track, about 5m wide for most of its length, with no drainage infrastructure. Due to a lack of maintenance, the road is overgrown with weeds in several sections and there are visible signs of rill formation due to surface runoffs. For much of its length (approximately 2 km), the road passes through undeveloped areas with no or sparse human settlements. The surrounding environment is marked by anthills, and bush burning is a prevalent practice among residents of nearby communities. The road traverses two major communities, Okpufu and Ama Utazi, whose residents are predominantly farmers cultivating crops such as rice, cassava, yam, plantain, and palm oil. The area also hosts local quarries and artisans, contributing to the community's livelihood. The lowest point along the road, will require the installation of a culvert (coordinates: N5.71200314; E7.61282544) to mitigate waterlogging during the rainy season. This issue has increased road deterioration in this section. Upon consultations with community elders, it was revealed that a sacred tree called <i>"Ala Nna Umuokpo"</i> whose branches partly encroached into the width of the road, is not to be removed due to its cultural value to the community. To accommodate this, there may be need to adjust the road alignment to the right, which would require relocating an electric pole and a small makeshift shop. The communities observe two significant market days, <i>"Eke"</i> and <i>"Afor,"</i> occurring every eight and four days, respectively. During this period, there is peak human and vehicular traffic along the road. Alternative routes for traffic detours, such as Agbabo Road, Eke Road, and Amaoji–Akpufu Road, have been suggested by the community to mitigate disruptions during road rehabilitation. Local dispute resolution is initially handled at the compound level (Ezi/Mbara), then escalated to the	There may be need to install a culvert at the lowest point of this road to prevent waterlogging during peak rainy season. Presence of a sacred tree whose branches partly encroached into the width of the road. There is peak human and vehicular traffic along the road during their market days.	

Lot s	Name of Road	GPS Coordinat	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
	Obinulo – Umumaduako – Umumezie	Start Point N5.965595 E7.386362 Terminal N5.963889 E7.408752	The Obinulo (Oba Junction) – Umumaduako – Umumezie Road begins at Orie Ngodo Market and terminates near Evangel Secondary School in the Ndiawa Isuochi community of Umu Nneochi LGA. It is an earth road spanning 2.55 km, with an average width of 6m. The road passes through the villages of Isuochi and Umumezie, with Orie Ngodo Market serving as a vibrant socio-economic centre at the road's entrance. Extensive grading activities over time have lowered the road's surface below the level of the existing drainage system, preventing effective water flow into the drains during rainfall. This condition has led to persistent sectional flooding, further exacerbated by silt accumulation and overgrown weeds in some culverts along the route. Approximately 1.25 km into the road, its width begins to narrow due to the encroachment of structures, including provision stalls, business kiosks, fences of the Assemblies of God Church, Obinulo and other structures. These encroachments may require compensation and removal to restore the road's functional width during the proposed rehabilitation (refer to the RAP). Further along the route, locally installed safety measures, such as signage and earthen speed bumps, are evident near the Ngodo Town School. These were implemented by the Umumezie community to slow vehicles and ensure the safety of school children crossing the road. Near the	Lowered road elevation and blocked culverts cause frequent sectional flooding during rains. Encroaching structures may require compensation. Locally constructed speed bumps emphasize the need for improved safety measures and road furniture near the Ngodo Town School. A large gully at the road's	
	Orie Ngodo Market – Obinohia Umudim – Lomara	Start Point N5.965318 05 E7.386021 5 Terminal N5.933848 65 E7.354897 47	The Orie Ngodo Market – Obinohia Umudim – Lomara Road begins at Orie Ngodo Market and extends approximately 5.2km to its terminus at the Ajali – Ihube Road in Lomara. The road comprises two main sections: an initial 1.3km of failed surface-dressed pavement with an average width of 7.5m, followed by an unpaved earth section approximately 8m wide, although overgrown weeds obscure much of its width. The road's infrastructure includes street lights, speed bumps, and five box/ring culverts, most of which are inefficient or damaged due to improper invert levels, silt build-up, poor maintenance, and the deposition of household waste. The existing drainage system is similarly compromised by overgrowth and neglect, further reducing its effectiveness. Towards the terminal section, the road transitions into a narrow footpath through a bushy area, accessible only by pedestrians and motorbikes. Due to limited usage, local residents have cultivated economic crops such as cassava and oil palm within the road corridor, which will need to be cleared to accommodate the proposed rehabilitation. At the road's endpoint, the Obabie community meeted coverse building	Existing culverts and drainage are inefficient due to poor design, silt accumulation, waste disposal, and weed overgrowth. A community market building encroaches on the road's width and will require relocation, with an alternative site identified.	
Lot 3	Amorji – Ngbedeala – Ntigha – Umukalu – Mbawsi	Start Point N5.383015 09 E7.381080 08 Cross Junction N5.380138 92 E7.4021122 5 Terminal N5.399016 1 E7.409240 4 4	This feeder road connects Amaorji – Nsulu to Umunachi in Isiala Ngwa LGA. It is an unpaved road spanning a length of 4.45km and 4.5m wide without an existing drainage channel. The road which has just been recently graded, experiences low traffic, primarily comprising of motorbikes and pedestrians, and generates fugitive dust during use. Flat terrain and the absence of natural watercourses make runoff management challenging, hence the need for an effective drainage to prevent ponding. The road serves three (3) rural communities (Amaorji/Amaugba, Umukalu Ntigha, Okpuala/Umunachi) reliant on subsistence farming, with crops such as maize, cassava, and plantain cultivated by the roadside. There is a cross junction along the route where the proposed route shall continue left up to its terminus. Along this route, plantain trees within the ROW and informal brick moulding activities may require removal to give way for the proposed rehabilitation. Moreover, speed bumps are necessary near human settlements to reduce the risk of	Flat terrain and lack of natural watercourses make drainage planning critical to prevent ponding. Plantain trees within the ROW and informal brick moulding activities may require relocation or removal. Speed bumps are necessary near	

Lot s	Name of Road	GPS Coordinat	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
	Amorji Market Road – Amorji Junction	Start Point N5.389135 97 E7.379889 21 Terminal N5.377412 65 E7.372554 41	The project route begins at the Enugu–Umuahia–Port Harcourt Expressway and extends for 1.61km. It provides access to Amaorji Community via the Orie Ukwu Amaorji Market in Isiala Ngwa North LGA. The drainage adjacent the road entrance is stagnant and clogged due to household and municipal wastes accumulation. The road serves as a good link for the farming communities within the LGA. It connects the Amaorji/Amaugba community directly to the expressway, facilitating access to broader regional transport networks and supporting local economic activities. As one of the major rural roads in high Market Market accumulation will client facently	The drainage adjacent the road entrance is stagnant and clogged due to household and municipal wastes deposition.	
	Ogbagala Junction – Amaugba	Start Point N5.382361 E7.381098 Terminal N5.383275 E7.376850	The Ogbagala Junction–Amaugba Road is a short rural road spanning 0.49km, originating from Amaorji Community/Orie Ukwu Amaorji Market. It is designed to connect with the Amaorji Market–Amaorji Junction Road, which is also slated for rehabilitation under the Abia RAAMP project. The earth route primarily passes through farmlands, with minimal human settlements observed along its length. The terrain is predominantly flat, with no existing drainage infrastructure or culverts, making the road prone to waterlogging during rainfall. Its rehabilitation will ease traffic congestion on Amaorji Road, particularly during market days and improve access for farmers transporting produce to the Enugu– Humubic Dat Heasurt.	No existing drainage infrastructure or culverts, making the road prone to waterlogging during rainfall.	
	Nbawsi – Agburuike – Umuomaighiu kwu	Start Point N5.310021 87 E7.435840 41 Terminal N5.425199 19 E7.414099 82	The Nbawsi–Agburuike–Umuomaighukwu Road is an unpaved rural road originating from the Osusu–Ezi Amata Road in Nbawsi Town. Spanning approximately 5.49km with an average width of 8m, the road traverses a fairly level terrain with sandy, loose soil. Traffic along this road is minimal, predominantly involving pedestrians, motorbikes, and bicycles used for transporting people and agricultural produce to markets and residences. The absence of drainage infrastructure leads to significant waterlogging and muddy conditions, mainly during the rainy season. Some structures, including pavements, fences, and plantain trees, encroach on the road's width and may require removal during rehabilitation to accommodate the proposed upgrades. The surrounding environment is semi-developed, with key public facilities such as schools and primary health centers located nearby. A notable feature along the road, at coordinates N5.393075 E7.435480, is the exposure of asbestos pipes, remnants of a water pipeline installation from the 1970s that reportedly never served the community.	of drainage infrastructure resulting in muddy conditions during the rainy season. Encroaching structures such as fences, pavements, and plantain trees may need removal for road widening. Exposed asbestos pipes along the road	
	Amiyi Nvosi – Ometeghi – Umuada Nvosi – Omuapu Road	Start Point N5.310021 87 E7.461938 37 Terminal N5.290497 35 E7.422521 8	The Amiyi Nvosi–Ometeghi–Umuada Nvosi–Omuapu Road spans 5.6km, comprising a fairly graded earth track that begins at the Mvosi–Amiyi Road and passes through Nkwo Ebe Market in Isiala Ngwa South LGA, Abia State. The road has an average width of approximately 8.5m, though this varies due to weed encroachment in some sections. The terrain is predominantly flat throughout its length, facilitating accessibility. The road connects the Amaiyi, Ometeghi Nvosi, Umuada Nvosi, and Omuapu communities, where the majority of residents are farmers cultivating crops such as maize, cassava, cocoyam, yam, plantain, banana, oil palm, and pepper. A perennial stream cuts across the road at coordinates N5.295785	N/A	

Lot s	Name of Road	GPS Coordinat	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
	Nkwo Ebe – Umunko – Umuakwu	Start Point N5.333751 51 E7.479105 45 Terminal N5.358413 38 E7.498458 99	The Nkwo Ebe–Umunkwo–Umuakwu Road is a 3.62km rural road starting at Nkwo Ebe Market and ending at Aba Road in Umuakwu, Isiala Ngwa South LGA, Abia State. The road lies on flat terrain and has an average width of 7m. However, the existing drainage system is poorly maintained and uneven, leading to water management challenges during the rainy season. In some sections, the road sits lower than the drainage level due to excessive grading, rendering the drainage ineffective and causing waterlogging issues. The road is accessed via the Aba–Isingwu Road, linking Nkwo Ebe to Umukpeyi Town. It traverses the communities of Umukpeyi, Umunkwo, and Umuakwu, serving as a vital connection to farmlands, residences, churches, the Umunkwo Village Hall, a primary health center, and a maternity clinic. Settlements are mainly concentrated in Umuakwu, while the areas beyond the Y-junction near	Ineffective drainage system due to uneven levels and over- grading causes waterlogging during the rainy season.	
	Umuakwu – Amachi – Umukpeyi	Start Point N5.358717 E7.499049 Y- Junction/ Beginning of Spur N5.355286 E7.512444 Spur N5.350868 E7.514418 Main Alignment' s Terminal N5.354718 E7.516739	The Umuakwu (Umuaro) – Amachi – Umukpeyi Road is a 2.6km rural road originating from the Ubaha–Oloko Road in Umuakwu, Isialangwa South LGA, with a 570m spur branching off its main alignment. The road features both paved and earth sections. The paved section, in relatively good condition, has an average width of 6m, while the earth section is 8m wide. The route traverses Umuakwu and Umuogele communities, whose residents are primarily farmers and traders. The environment is semi-built-up, particularly in Umuakwu, while traffic along the road is minimal and includes trucks, cars, motorcycles, and bicycles, mainly used by travellers, residents, and farmers. At the road's starting point, a drainage structure dissects the road and channels water off to the Ubaha–Oloko Road. However, silt accumulation has led locals to undertake periodic desilting to maintain its functionality. Along the main route, gully erosion is evident, exacerbated by inefficient drainage systems—most existing drainages are elevated above the road level due to excessive grading. This condition, combined with poor maintenance, causes sections of the road to be	Inefficient drainage systems, elevated above road level. Gully erosion and flooding is prevalent due to poor road grading and ineffective drainage. Rehabilitation may require clearing encroaching trees near the spur's terminal.	

Lot s	Name of Road	GPS Coordinat	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
Lot	Eziama – Amibo Ring Road	Start Point N5.491780 E7.437871 Junction at Uturu Isiala N5.494957 E7.424074 Terminal N5.476867 E7.434208	The Eziama–Amibo Ring Road originates at the Enugu – Umuahia – Port Harcourt Expressway in Eziama community and extends for 3.95km, terminating at Amibo community. The road features a deteriorated surface dressed section and an earth track with an approximate width of 7m. Drainage infrastructure is largely absent, except for a 500m stretch on the left side near the starting point. Poor drainage and multiple failed sections have contributed to erosion, making parts of the road vulnerable during the rainy season. The route connects Amibo, Eziama, Uturu Isiala , and Amuzu-Ubakala communities, whose residents primarily engage in farming and logging. Key agricultural activities include cultivating crops such as yam, cassava, maize, and vegetables, alongside timber production for commercial purposes. The road provides access to three major markets: <i>Ahia Onyechefula Ala</i> (in Amuzu), <i>Ahia</i> <i>Ogumabiri</i> (in Eziama), and <i>Ahia Afor Uche</i> (in Amibo), which experience peak pedestrian and vehicle traffic on market days. Community consultations revealed that alternate routes such as Umuaroko, Umuekpe, and Umuda Roads could serve as detours to ease traffic congestion during rehabilitation works. A critical environmental issue was noted in the Uturu Isiala Community, where their adjoining road adjacent to the Eziama – Amibo Ring Road, becomes submerged during that the adjoining road lies at a lower elevation, it provides a natural drainage outlet for runoff from the Eziama–Amibo Ring Road. This issue has also contributed to erosion along their road which has	The road has erosion-prone areas and inadequate drainage, leading to sectional waterlogging during heavy rains and subsequent road deterioration. Runoff from the road causes flooding and erosion along the lower-lying Uturu Isiala community road. High pedestrian and vehicle traffic along the road on market days.	
	Agalaba Ise – Ahiamorie – Umuamadi – Amalaubi – Umuokereke	Start Point N5.473526 E7.444908 Terminal N5.424196 E7.442289	The Agalaba Ise–Ahiamorie–Umuamadi–Amalaubi– Umuokereke Road is a 6km rural route that begins at the Afaraukwu–Eziama Road and terminates at Agburuike Nsulu in Isiala Ngwa North LGA, Abia State. This inter- LGA road serves as a vital connection between Umuahia South and Isiala Ngwa North LGAs. The road consists of asphalted sections in good condition and earth road sections that are poorly graded. It has an average width of 7m for the asphalted sections and 10m for the earth sections, though drainage infrastructure is inconsistent and inadequately distributed along the route. The road traverses rural communities such as Mbara Akuma, Ahiamorie, Umuokereke, and Agburuike, where settlements are interspersed with farmland and fallow plots. Key features along the road include St. Charles Hospital, Migrant Farmers School (Umuokereke), Comprehensive Primary School (Agburuike), markets, and small businesses such as kiosks and shops. During construction, the design may need to incorporate slab crossings at critical access points to ensure continued vehicle entry into schools, churches, and the hospital, particularly during drainage works. Beyond the built-up	Schools, churches, and the hospital require slab crossings for accessibility during and after construction, particularly during drainage installation. Need for the removal of few palm trees which encroached into the width of the road.	

Lot s	Name of Road	GPS Coordinat	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
	Apumiri – Avo – Amibo Express	Start Point N5.473897 E7.436044 Terminal N5.486478 E7.440972	The Apumiri-Avo-Amibo Express begins at the Afaraukwu–Eziama Road within the Ubakala community in Umuahia South LGA, spanning a total length of 1.52km with an average width of 8m. Near its starting point, the fences of key public facilities, including the Nigerian Police Divisional Headquarters and the Ubakala Post Office, are situated in close proximity to the road, in such a manner that they appear encumbering. Removal or realignment of these fences may be necessary to accommodate the proposed rehabilitation. The road traverses built-up peri-urban communities, including Apumiri Ubakala and Amibo , whose residents are mainly farmers and civil servants. Toward its terminal, the environment transitions to fallow land with noticeable weed overgrowth, which will require clearing. The practice of open roadside waste dumping is prevalent and poses a challenge to maintaining the rehabilitated road. Significant features along the route include the Apumiri Guest House and Amibo Community Primary School, both of which may require the construction of	Fences of public facilities and an encroaching building fence may need removal for rehabilitation. Open roadside waste dumping is common Ramps or slabs may be required for entrance into key facilities	
	Agalabano – Umuhu Central School – Ekeoba	PART A: Start Point - N5.587934 E7.45312 Terminal – N5.584997 E7.448323 PART B: Start Point - N5.587934 E7.45312 Terminal – N5.580065 E7.444708	The Agalabano – Umuhu Central School – Ekeoba Road spans approximately 1.36 km (average width of 4 metres – particularly in built up areas) and is divided into two distinct sections namely Part A and Part B, both within Umuahia North LGA. Part A begins at Okpara Road in Nkata Alike Community (Agalabano) and terminates shortly after the Umuhu Central School at the Enugu – Umuahia – Port Harcourt Expressway. It covers a total length of 700m. The vegetation in this section is predominantly tropical rainforest, marked by dense palm bushes, bamboo (<i>Bambusa tulda</i>), Elephant grass (<i>Pennisetum purpureum</i>) and various weed species. Extensive vegetation overgrowth has rendered much of the road impassable to vehicles, thus creating significant challenges for local residents. Additionally, a stream lacking a functional cross-drainage structure, cuts across the road approximately 200 meters from its origin. This forces road users to take a footpath along a longer route, through a stone-based platform for crossing the stream, thus disrupting connectivity between farmlands and neighbouring settlements. The project plans to address this issue through the installation of a Cross Drainage Structure (CDS) at this point. Considering the need for widening the existing 4-meter road width to meet design specifications, physical structures, including pavement at a residential entrance, electricity poles, fence bordering a farmland, and cassava stands near the road shoulders, may be displaced/removed (a stand-alone Resettlement Action Plan (RAP) is currently being prepared to address impacts related to physical and economic displacement). It is noteworthy that for the part A section, the roadway is barely an existing road, particularly around the road section in proximity to the stream.	 Overgrown vegetation has rendered the road impassable to vehicles. A stream without a functional cross- drainage structure disrupts connectivity, forcing residents to use a makeshift bamboo bridge. The need to widen the road will affect physical structures such as residential pavements, electricity poles, fences, and cassava stands. 	Nkata Alike Stream requiring a Cross Drainage Structure

Lot s	Name of Road	GPS Coordinat	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
	Umuawoli Road	Start Point N5.498529 E7.401644 Terminal N5.494268 E7.404054	The Umuawoli Road originates from the Ubakala–Umu Nwa Nwa Road, accessed via the Afara–Eziama Road, and is situated in Umuahia South LGA. This rural earth road spans a short distance of 0.6km with an average width of 6m. It serves as a critical link to farmlands within the Umu Nwa Nwa community. Human settlements are sparse, with structures observed only near the road's starting point and close to its termination. The road is poorly maintained, with significant weed encroachment reducing its effective width at several intervals. Traffic along the route is minimal, primarily consisting of pedestrians and farmers using bicycles to transport	N/A	
	Ogbodiorilok u – Umuchiche – Mbaraukwu	Start Point N5.535646 E7.460193 Ogbodi- Ukwu Junction (Spur Origin) N5.541436 E7.440498 Spur Terminal N5.548019 E7.442488 Main Alignment Terminal N5.548703 E7.440101	The Ogbodioriloku–Umuchiche–Mbaraukwu Road begins near the Abia Tower Roundabout, branching off the Enugu–Umuahia–Port Harcourt Expressway. The route spans 4.39km with an average width of 9m, although greater portions are overgrown with weeds. It includes a main earth track alignment and a paved spur. While culverts are present along the route, many are silted, and drainage infrastructure is unevenly distributed, contributing to poor water management, groove and rill erosions along the road and slope. The road traverses semi-built-up areas interspersed with fallow land. Near its entrance, several socioeconomic activities are evident, including provision shops, kiosks, POS points, fruit vendors, pan cake sellers and small eateries (bukateria). Along the stretch, encroachments such as fences and pavements narrow the effective road width. The road serves two communities, including Ama Achara and Ogbodi Ukwu , whose residents primarily engage in palm oil processing. A key feature is the Ofe lyi stream traversing the road at coordinates N5.535705 E7.46019 and being utilized for washing and processing palm oil. Beyond the stream, the route enters Ogbodi Ukwu community, where special care is needed to preserve the village square, "Mbara," at the Ogbodi Ukwu Junction	Fences, pavements, and palm trees along the road may require removal, especially near the main alignment's terminal. The "Mbara" village square at Ogbodi Ukwu Junction is culturally significant and must be preserved. Silted culverts and uneven drainage infrastructure makes the road	
Lot 5	Umuariama – Ahiaba Ubi – Nkwo Elechi	Start Point N5.172033 5 E7.394600 57 Terminal N5.155045 95 E7.395961 31	The Umuariama–Ahiaba Ubi–Nkwo Elechi Road originates from the Umuohia Council Hall Road in Umuariama, Alaoma Autonomous Community, located in Obingwa Local Government Area, Abia State. The road spans approximately 2.98km and consists of both an earth track and a paved section, with average widths of 12m and 8m, respectively. Road rehabilitation activities are currently underway at the paved section near Nkwo Elechi Market. The terrain along the route is predominantly flat, creating significant runoff management challenges, particularly during the rainy season. This flat topography prevents proper drainage outflow, causing the existing drainage channel in the paved section to overflow and flood the road. As a result, waterlogging is a persistent issue, hence there is need for efficient drainage infrastructure to ensure sustainable usage of the road. The route passes through the communities of Umuariama Alaoma, Umuariama Umuojima , and terminates at the Nkwo Elechi Market area. It serves as a vital access corridor connecting neighbouring villages, farmlands, and local footpaths. Current usage of the road primarily includes residents, farmers transporting their produce, and travellers. The	Road rehabilitation activities are currently underway at the paved section near Nkwo Elechi Market. Flat terrain poses runoff management challenges, leading to frequent flooding and waterlogging, particularly during the rainy season.	

Lot s	Name of Road	GPS Coordinat	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
	Nkwo Elechi – Umuagu – Umuorukwu – Osusu – Amaukwa Road	Start Point N5.153450 E7.395034 Tarred Section Commences N5.147701 E7.404071 Earth Track Continues N5.147789 E7.404949 Terminal N5.129369 E7.414394	The Nkwo Elechi–Umuagu–Umuorukwu–Osusu– Amaukwa Road begins at the Umuohia Council Hall Road, passing through Nkwo Elechi Market, and terminates at New Umuahia Road. Spanning a total length of 3.88km, the route comprises both paved and earth sections, with average widths of 7.3m and 9.5m, respectively. The majority of the road is unpaved and semi built-up, and the earth section lacks any drainage infrastructure, unlike the paved section where a basic drainage system exists. The terrain is predominantly flat, creating significant challenges for runoff management. During rainfall, water accumulates at the lowest point of the road, located at coordinates N5.150420, E7.400659, resulting in persistent waterlogging and flooding. To address this, the engineering design includes a culvert installation at the identified low point. However, this introduces a potential environmental and social sensitivity, as the proposed discharge point for runoff water is a privately-owned farmland, raising potential land use and compensation concerns (details provided in Course VM). The send atteres the tage sender the part of the road sender the part of the part of the road sender the part of the part of the road sender the part of the part of the part of the part of the road sender the part of the part o	Flat terrain and absence of drainage along the earth sections results in puddles and waterlogging, particularly at the lowest point of the road. Proposed culvert installation may redirect runoff onto privately- owned farmland.	
	Nkwo Elechi – Market – Umueme Road	Start Point N5.156426 1 E7.394375 2 Terminal N5.150366 E7.376393 63	The Nkwo Elechi Market–Umueme Road begins at the Nkwo Elechi Market and connects to the Umuagu– Umkalika Road in Obingwa LGA. This road spans a length of approximately 2.11m, with an average existing width of 9m. It currently lacks drainage infrastructure, making it highly susceptible to waterlogging and poor runoff management. These conditions have resulted in a severely degraded and muddy road surface, significantly disrupting business activities and limiting accessibility, particularly for smaller vehicles. The poor state of the road has adversely impacted economic activities, including stalls and roadside traders at Nkwo Elechi Market, as well as businesses such as Chegal Hotels and various outlets located within Umuagu. Key facilities along the road include a primary healthcare center, a	The absence of drainage infrastructure leads to severe waterlogging and muddy conditions, impacting road usability and resilience.	
	Umuagu Ohuru Amaisii – Osaa Ukwu – Itungwa Road	Start Point N5.145764 81 E7.400726 58 Terminal N5.193003 92 E7.459756 13	The Umuagu Ohuru Amaisii–Osaa Ukwu–Itungwa Road originates from the Obikabia – 7Up Road in Obingwa LGA, Abia State. The road spans approximately 9.3km and varies in width, with the paved sections measuring 10m and the earth sections reaching 12m. Current traffic along the road is minimal, predominantly consisting of pedestrians, bicyclists, and occasional motorbike riders, with an average driving speed of 20–30km/h. This road links four communities: Umuobasiukwu, Ohuru Amaisii, Osaa, and Imu Ikala, serving as a vital access route for local residents and fostering inter-community connectivity. However, the road's condition requires significant attention. A critical low point (coordinates N5.15302863, E7.41838872) experiences frequent water puddling, hence requires the installation of culverts to manage runoff effectively. Additionally, existing culverts along the road are obstructed by silt and overgrown weeds, reducing their functionality and requiring	Culvert installation necessary to manage runoff at low point. Existing culverts are obstructed by silt and weeds, leading to reduced functionality and waterlogging.	

Lot s	Name of Road	GPS Coordinat	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
	Asa Umunka – Umugo – Ameyi Oza – Ozanta – Ugwati Asa	Start Point N5.037757 38 E7.319765 4 Terminal N5.040308 55 E7.275135 38	The Asa Umunka–Umugo–Ameyi Oza–Ozanta–Ugwati Asa Road originates off the Enugu–Umuahia–Port Harcourt Expressway in Ugbwunagbo LGA, Abia State, and spans approximately 5.24km (about 15 minutes' drive) with an average existing width of 10m. The road is currently an earth track with no established drainage infrastructure, making it prone to waterlogging during the rainy season. This road traverses three key communities: Asa Umunka, Ozata Umugo, and Ugwati, connecting these settlements to each other and to the larger regional road network. The local population primarily consists of farmers, petty traders, artisans, craftsmen, and civil servants. The environment along the route alternates between semi-developed areas with scattered residential and commercial buildings and stretches of fallow farmland and unused plots. At Ozanta, the road cuts across an existing railway line at coordinates N5.034125, E7.296544, thereby posing safety risks. Despite the generally low traffic levels, the road remains relatively	Absence of drainage infrastructure leads to waterlogging. The road cuts across an existing railway line, thus posing safety risks.	

Table 10: E&S Site-Specific Description of Some Roads Earmarked for Spot Improvement.

Lot s	Name of Road	GPS Coordina	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
1	Ozara Market Junction – Amaoku Alayi – Ugwueke Road	Start Point N5.726710 E7.604495 Terminal N5.756542 E7.600172	The Ozara Market Junction–Amaoku Alayi–Ugwueke Road spans approximately 2.8km, consisting of an asphalt-paved section and an unpaved earth road. The paved section has an average existing width of 7.3m, while the unpaved section measures about 4.5m in width. The terrain along the paved segment is predominantly flat, whereas the unpaved section features a gentle gradient with clayey soil. The road traverses the communities of Ozara, Amaoku Alayi, and Ugwueke, which are the primary built-up areas along its course. Residents of these communities rely heavily on agriculture and trading activities, particularly at the Ozara Market. Drainage infrastructure is notably absent, leading to significant surface water accumulation on the carriageway during rainfall. This has caused severe erosion, sedimentation, and surface ponding, which degrade the road surface and impede accessibility. The flat terrain amplifies these issues, requiring careful attention during rehabilitation to manage runoff effectively. A culturally significant tree is located at the center of the road near Amaoku Alayi (coordinates N5.7742565, E7.605240). To avoid adverse impacts on this revered feature, road alignment may need to shift to the right during construction activities (refer to PCRMP – Annex XX), particularly during road shoulder expansion. Further along the road, lyi Ogbu Nkwu, a stream serving the community for domestic purposes, crosses the road. The entrance to the stream is directly on the road, presenting a need for the construction of a new access point to ensure continued community use post- rehabilitation. In addition, ongoing road and drainage construction activities were observed near the road's terminal point, which connects to Ugwueke Road.	Lack of drainage infrastructure causes surface water accumulation, erosion, sedimentation, and ponding. A revered tree located at Amaoku Alayi requires careful consideration during rehabilitation activities. The lyi Ogbu Nkwu stream, a vital water source for domestic use, needs a reconstructed access point post- rehabilitation.	
	Amaokwelu Alayi Junction – Amankalu – Akoli Imenyi	Start Point 5.692667° 7.599212° Terminal 5.667726° 7.553291°	The Amaokwelu–Alayi Junction–Amankalu–Akoli Imenyi Road spans approximately 6.25km, originating in Amaokwelu and terminating at Akoli Imenyi in Bende Local Government Area, Abia State. The road has an existing average width of 5.4m, although significant portions are overtaken by dense weed overgrowth, reducing its accessibility. The road begins with a paved asphalt section, but the remaining earth-based stretch– designated for rehabilitation—Iacks drainage infrastructure. The underlying clayey lateritic soil is highly prone to erosion, especially along the undulating terrain, which alternates with flat sections. The road traverses rural communities, including Amankalu, Akoli Imenyi, and Amaba. It is strategically positioned to serve as a bypass or alternative route for commuters traveling to Umuahia and Aba, linking up with the Alayi–Umuahia Road at its terminal. However, the route is currently impassable beyond the Igwu River due to a failed CDS at the bridge, which is surrounded by overgrown vegetation. This bridge is a critical link connecting these communities to other areas in Abia State, such as Uzuakoli, Item, and Igberre. The communities along this road are predominantly agrarian, engaging in the commercial production of crops like rice, potato, yam, maize, cassava, and oil palm. The	The absence of drainage infrastructure along the earth- based sections, coupled with clayey lateritic soil, exacerbates erosion and waterlogging. The failed CDS at the Igwu River bridge renders the road impassable, severing access to critical connections with other communities and markets.	

Lot s	Name of Road	GPS Coordina	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
2	Alayi – Ezeukwu Road	Start Point N5.740700 E7.595497 Terminal N5.818986 E7.561883	The Alayi–Ezeukwu Road is a 9.158km route situated in Bende LGA, Abia State. It originates at Alayi and terminates at Ezeukwu community, passing through Ndelu Ugwueke, Isiala, and Ezeukwu. The first 4km of the road is asphalted, while the remaining stretch consists of a deteriorated surface-dressed section, marked by erosion and poor usability. The road traverses areas dominated by fallow plots, wild palm bushes, and patches of cultivated cassava farms. A notable feature along the route is a recently constructed 3-cell box culvert, which replaced an older bailey bridge. However, erosion has begun to degrade the culvert's edges, threatening its structural integrity. Weed encroachment along the road has significantly narrowed the carriageway, making navigation challenging. Low-lying sections of the road experience severe water pooling during the rainy season, leading to muddy and impassable conditions. To cope, locals have resorted to laying logs and lumber over the flooded portions for temporary access. The road intersects Afor Modern Market at Ezeukwu, a significant trading center that operates every eight days and generates peak traffic during market days. Near Amakwu Junction, a culturally revered tree, known locally as "Egbu Egbukwa," stands close to the road. The site around the tree is considered	Newly constructed 3- cell box culvert shows early signs of edge erosion The sacred "Egbu Egbukwa" tree near Amakwu Junction is culturally significant to the Ezeukwu community. The road serves Afor Modern Market at Ezeugwu, which sells every eight days, thus leading to road	
	Ezeukwu – Ugwueke Road	Start Point N5.806539 E7.559909 ° Terminal 5.798484° 7.613002°	The Ezeukwu–Ugwueke Road branches off the Alayi– Ezeukwu Road at Amakwu Junction in Ezeukwu and extends approximately 6.6km to Ugwueke. The road has an average existing width of about 5.5m but narrows to approximately 2m in sections where vegetation has heavily encroached on the roadway. Within the first kilometre from Amakwu Junction, a dilapidated bailey bridge obstructs vehicular access to Ugwueke, posing a major barrier to connectivity. This bridge has been prioritized for rehabilitation as part of Phase II intervention under the Abia RAAMP project. Before the bridge, a sacred tree named " <i>Akparata</i> " and a shrine known as " <i>Arusi Ajala</i> " were found in proximity to the road. Few metres beyond the bridge, a low-lying segment of the road tends to be marshy and impassable during the rainy season due to inadequate drainage infrastructure.	Severe waterlogging during the rainy season due to a lack of drainage A collapsed bridge near Amakwu Junction restricts vehicular access, creating significant connectivity challenges for	

Lot s	Name of Road	GPS Coordina	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
3	Bende Etitiulo – Ubibia – Ndiwo – Itumbuzo – Okopedi – Ntalakwu	Start Point N5.535051 E7.644607 Terminal N5.503622 E7.639250	The Bende Etitiulo–Ubibia–Ndiwo–Itumbuzo–Okopedi– Ntalakwu Road originates from the Bende–Ndiwo Road and extends to the Awiwa Stream in Ntubi, Itumbuzo community, spanning approximately 4.34km. The existing road width is about 4m, bordered by dense vegetation, palm bushes, farmlands, and fallow plots along roughly 3km of its length. Traffic on the road is sparse, primarily limited to occasional motorbikes and large trucks transporting timber, as lumbering is a key livelihood activity in the area. The road which features gentle undulations and occasional steeps, is in terrible condition, with coarse, weathered rock surfaces, eroded slopes, and failed sections that make it challenging for smaller vehicles to navigate. These issues are exacerbated during the rainy season, when the road becomes muddy, impassable, and inundated due to the absence of drainage infrastructure. Environmental concerns include the prevalence of rills, gully erosion sites, and sectional waterlogging. These conditions significantly hinder accessibility for the rural communities the road serves, including Etitulo, Ubibia, Ntubi, and Itumbuzo. The road supports primarily agricultural livelihoods, with residents cultivating food and cash crops such as cocoa, cassava, oil palm, plantains, okra, coconuts, and leafy vegetables. Notably, the region is Abia State's largest producer of cocoa, making the road critical for commercial agriculture and economic connectivity. The road terminates approximately 300m after Awiwa Stream (coordinates	The road is flood and erosion prone. Narrow and dilapidated CDS over Awiwa Stream poses significant safety risks for the community.	
	Amaogwugw u Olololo Junction – Umukabia Road	Start Point N5.597725 E7.448625 Terminal N5.600247 E7.458985	The Amaogwugwu Olololo Junction – Umukabia Road is a 1.3km earth road, with approximately 0.67km. The road currently measures about 6m in width and features a concrete drainage system on both sides, though this is only partially implemented near the road's entrance. Notably, the junction connecting the road to Okpara Road lacks a culvert. Additionally, the drainage along Okpara Road lacks a culvert. Additionally, the drainage along Okpara Road at the Amaogwugwu Olololo Junction is obstructed by a concrete seal, preventing proper water flow across the road. This design flaw has led to recurrent flooding at the entrance during the rainy season. Installing a culvert at this point is essential to channel water effectively and protect the upgraded road from future flooding damage. The road traverses a low-lying terrain prone to flooding.	The drainage along Okpara Road at the Amaogwugwu Olololo Junction is obstructed by a concrete seal, preventing proper water flow across the road. Existing drainage channels are higher than the	
	Umuafiaka – Umuokpara Road	Start Point N5.554487 E7.434922 Terminal N5.568055 E7.448055	The Umuafiaka–Umuokpara Road is a 2.6km unimproved earth road that begins at the Umuokpara customary court and ends at the Enugu–Port Harcourt Expressway in the Umuafiaka community. The road has an average width of about 4m and features a drainage infrastructure, though not consistently present across all its length. Development or human settlement is minimal along the road, with activity primarily concentrated at its starting and end points. The terrain is characterized by steep slopes and outcrops of metamorphic rocks, including sandstone and quartite, which make navigation difficult for smaller vehicles. The absence of adequate drainage systems in some sections, especially on slopes, has exacerbated erosion issues, evidenced by linear rills cutting through parts of the road. Slope stabilization and erosion control measures are necessary during the rehabilitation process. At coordinates N5.556832; E7.436487, the road is intersected by a small stream known as <i>"lyi Umuokpara</i> ," creating a natural barrier to vehicular movement. To facilitate access, local residents have constructed a basic bamboo bridge at this point. The planned project includes constructing a CDS here to improve accessibility. The stream serves as a vital resource for domestic water use, fobiac	A small stream divides the road thereby preventing access to the remaining section of the road leading to Umuafiaka. Lack of drainages along the slopes have resulted to the road being very susceptible to erosion and rill formation.	

Lot s	Name of Road	GPS Coordina	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
	Old Umuahia (Divinity School) – Osah/Ohia Road	Start Point N5.490831 E7.470582 Terminal N5.518857 E7.456221	The Old Umuahia (Divinity School)– Osah/Ohia Road is an unpaved, earth-surfaced track located within Umuahia South LGA, Abia State. It originates near the Assemblies of God Divinity School in Old Umuahia Town and terminates at the Enugu–Umuahia–Port Harcourt Expressway in Osah/Ohia Community. This road is a critical link for the community, connecting them to a major highway and facilitating access to markets, schools, and other essential services. The road spans a meandering route with an average width of 4.5m that varies due to poor maintenance and significant weed overgrowth along its length. The lack of a proper crown and drainage system has led to frequent waterlogging, rutting, and muddy conditions, especially during the rainy season, making it impassable for vehicles and pedestrians at times. At its starting point near Old Umuahia, several encroachments—including provision shops, food stalls,	Structures near the road's origin have narrowed the carriageway, requiring potential removal for rehabilitation. Absence of proper drainage leads to frequent waterlogging, and muddy sections, especially during the wet season.	
	Ahiaukwu – Amangwo – Umuajata – Umudere – Amakama	Start Point N5.478888 E7.500875 Terminal N5.450459 E7.490407	The Ahiaukwu–Amangwo–Umuajata–Umudere–Amakama Road, located in Umuahia South LGA, spans approximately 4km, and links several rural communities. The road comprises both a worn-out asphalt pavement and an unpaved earth section. It begins at the Ahiaukwu roundabout, passes through Amangwo, Umuajata, and Umudere, and terminates at Amakama, linking to the old Aba–Umuahia road. The initial 800m traverses a built-up area, while the remaining sections transitions into rural settlements and agricultural landscapes. The terrain generally alternates between flat and low-lying sections, particularly near the terminus. Existing drainage is intermittent, with functional sections present only at the beginning and at the asphalt section near the road's terminal. The lack of comprehensive drainage leads to waterlogging and erosion along the earth section, significantly affecting road usability, especially during the rainy season. A culturally significant structure, the " <i>Obi Ikoro</i> " Gong, partially encroaches on the road's midsection at Amangwo (coordinates N5.462733, E7.495438). To preserve this structure, the proposed road design may need to shift alignment to the left, with necessary relocation of a distribution pole. The road traverses through an unmotorable pathway marked by weed overgrowth and cultivated areas up to a floodplain near lyi Nkpurute stream (coordinates N5.453626, E7.492302). Due to its low-lying terrain, this section is prone to flooding during the wet season as the stream frequently overflows, inundating adjacent farmlands within a 30–50m radius and rendering the road impassable. The stream supports various ecosystem services, including fishing (notably cafish and tilapia), drinking water, domestic activities, and rendering the road impassable. The stream supports	The road traverses a floodplain near lyi Nkpurute Stream, where seasonal overflow floods farmlands and renders the road impassable. A deteriorated makeshift wooden culvert at lyi Nkpurute Stream disrupts connectivity. The <i>"Obi Ikoro"</i> Gong, a culturally significant structure, encroaches on the road at Amangwo.	
	Okpikpe Umuana – Ikot Ekpene Road	Start Point N5.507258 E7.512106 Terminal N5.515688 E7.513975	The Okpikpe Umuana–Ikot Ekpene Road, located in Umuahia South LGA, is approximately 1.2km long, connecting Okpikpe community to lkot Ekpene Road. The road follows a flat terrain and has an asphalt surface that has significantly deteriorated due to poor drainage, which is inconsistently distributed and clogged with silt. The road width varies between 4m and 6m and passes through a developed, low-income area where residents rely on petty trading and small-scale farming for their livelihoods. Surface ponding and puddles, particularly at low points, have further degraded the road. To address waterlogging and runoff from adjacent properties, additional culverts and improved drainage are needed. The road is vital for local commerce, as it provides farmers with access to	Poor drainage causing surface ponding and road deterioration. Need for additional culverts and improved drainage to prevent waterlogging.	

Lot s	Name of Road	GPS Coordina	Site Specific E&S Description of the Roads and Project Environment.	E&S Sensitivity	Pictures
	Umuanyaso Road	Start Point N5.094505 E7.343508 Terminal N5.098404 E7.341624	The Umuanyaso–Uratta Road, located in Aba South LGA, is an unpaved earth road approximately 0.5km in length, serving as the only access route to Umuanyaso Road from Uratta Road in Aba Town. However, Uratta Road, previously under reconstruction, has been abandoned and is currently unmotorable, severely restricting access to Umuanyaso Road. The terrain along the road is flat and passes through a developed area characterized by small- scale commercial activities and basic social amenities, including a school and water points. The road, with an average width of 6m–9m, is in a poor state, with surface ponding caused by the absence of adequate drainage infrastructure. The lack of side drains and cross culverts has made the road impassable during the rainy season. This road plays a critical role in supporting local commerce, enabling residents to transport and sell	Inadequate drainage infrastructure leads to surface ponding and impassable sections. The abandonment of Uratta Road severely limits access to Umuanyaso Road, affecting local mobility.	
	Umuegwere Road	Start Point N5.095188 E7.345105 Terminal N5.098175 E7.343656	The Umuegwere–Uratta Road, located in Aba South LGA, is an unpaved earth road approximately 0.37km in length. It connects the Umuegwere community to Anyanzu Road and terminates at Uratta Road, which is presently unmotorable due to an abandoned reconstruction project. Running parallel and less than 200m from the Umuanyaso Road, also earmarked for rehabilitation, this road traverses flat terrain within a developed area characterized by small-scale commercial activities and social amenities, including water standpoints. The road, with a width of 6m–9m, is in a natural sandy state that hampers drainage, leading to surface ponding particularly at low points, during rainy season. This road is crucial for local commerce, facilitating the transport of agricultural products to nearby markets. It also serves as an important	Absence of side drains and cross culverts amplifies the formation of water puddles and hampers road usability, especially at low points. Access route to the road (i.e. Uratta Road) is deteriorated and	

4.2.1 Major Finding for Ogbodioriloku – Umuchichie – Mbaraukwu Road



Binagery Date: 3/17/2024 (Mt. 5.541217) fon 7.439905 ellev 342/fn eye at 1311 ft Figure 11: Google Earth Map Showing the Proposed Design Modification for Ogbodioriloku – Umuchichie – Mbaraukwu Road.

During the E&S baseline studies, a significant finding was identified for the Ogbodioriloku – Umuchichie – Mbaraukwu Road, particularly in the Ogbodi-Ukwu Mbara community in Umuahia South LGA. According to the proposed design, the planned route for the main road alignment is set to cut through the community's village square, known as *"Mbara"*. The village square is an arena situated at coordinates N5.541248, E7.440264, on the right-hand side, about 2.6km from the start point of the road with an area of 1,064m² approx. Stakeholder engagements with the Council of Elders revealed that this site holds profound historical and cultural significance. The village square is regarded as sacred ground, historically used by the community's ancestors for the renowned Ekpe festival¹³. This annual event draws dignitaries and visitors from across the southeastern states. Beyond its ceremonial role, the square also serves as a central venue for village meetings and deliberations. The surrounding trees are also of immense cultural importance and integral to Ekpe ceremonies, as they form part of the ritual space where Ekpe masquerades are prepared and spiritual invocations are performed. Community members, particularly the elders, expressed concerns regarding the impact of the proposed road project on the village square. Specifically,

- Paving or asphalting the square during road rehabilitation could disrupt its function as a gathering space for festivals and meetings.
- The hard-asphalted surface may pose safety risks during celebrations, such as increased likelihood of injuries peradventure participants fall during traditional dances and gyrations.
- Construction activities could damage the culturally significant trees, undermining their role in Ekpe rituals.

¹³ **The Ekpe festival** is a significant festival in the Igbo culture. In January, the Ekpe Festival in Umuahia brings the community to life with its centuries-old tradition of Ekpe masquerades performing ethnic dances, making it a lively start to the new year. The Igbo people celebrate this festival annually and attract people from far and near to witness this colorful event. It's rooted in tradition and holds deep cultural meaning for the community. With vibrant displays and lively celebrations, the Ekpe festival showcases the rich heritage of the Igbo people. It's a time of joy, unity, and pride for all who participate.

To address these concerns, a collaborative engagement was undertaken between the Consultant, project team and the community. An alternative route alignment was identified to avoid direct impacts on the village square and its surroundings. The proposed adjustment includes: a) realigning the main road to bypass the Mbara village square entirely while maintaining its connection to the original course at the Ogbodi-Ukwu Mbara junction, and b) preserving the sacred trees and ensuring that the village square remains untouched by the proposed road rehabilitation activities, thereby safeguarding its cultural integrity. This alternative ensures the protection of the community's cultural heritage while allowing the proposed rehabilitation of Ogbodioriloku – Umuchichie – Mbaraukwu Road to proceed without significant disruption to their local way of life. Figure XX above illustrates the proposed realignment, demonstrating how it circumvents the village square and mitigates potential adverse impacts.

4.2.2 Major Finding for Roads in Obingwa LGA and Specifically, Nkwo Elechi – Umuagu – Umuorukwu – Osusu – Amaukwa Road

Broadly, most roads situated within Obingwa LGA, face significant challenges due to the predominantly flat terrain of the area. Additionally, the project areas are not well-drained as there are insufficient waterbodies (streams, rivers, etc.) to aid the discharge of water. This characteristic complicates and poses substantial challenges as regards runoff management. The issue is particularly pronounced during the rainy season when water accumulates due to inadequate drainage infrastructure, leading to waterlogging and road inundation. Community consultations have highlighted dissatisfaction with existing drainage systems on other roads in the LGA. The drains lack adequate discharge outlets, resulting in standing water and exacerbating flooding. Compounding this issue is the habitual dumping of household and municipal waste into the drains, which obstructs water flow and leads to stagnant pools, creating breeding grounds for mosquitoes and other parasites. See Figure XX below



Figure 12: Waterlogged Drains in Obingwa LGA—(Left) Overtopped Drainage Channel, and (Right) Deposition of Municipal Wastes into Existing Drainage at Umuariama – Ahiaba Ubi – Nkwo Elechi Market Road, Obingwa LGA.

Specifically, for the Nkwo Elechi–Umuagu–Umuorukwu–Osusu–Amaukwa Road, water runoff naturally accumulates at its lowest point situated approximately 725m into it (at coordinates N5.150420, E7.400659), causing persistent flooding. To mitigate this issue, the engineering design proposes the installation of a 15-meter single-cell ring culvert (with a 900mm diameter) at this location. However, this solution introduces a potential environmental and social challenge as the proposed discharge point for the culvert is a privately-owned farmland of area 4,542.37m² approx. (perimeter = 290m). See Figure XX



This raises concerns regarding land use, grievances attributed to potential impacts on agricultural productivity and compensation. The successful implementation of this drainage solution will require careful negotiation with the landowner, adequate compensation (refer to the RAP), and/or possibly an alternative discharge arrangement to address these sensitivities. Alternatively, the project may need to explore the option of forgoing the idea of installing hydraulic structures along this road, considering that the community strongly resists it. The proposed road rehabilitation, if well executed with proper runoff management, could significantly enhance connectivity and socioeconomic conditions for the affected communities while addressing longstanding drainage issues.

4.2.3 Major Finding for Eziama – Amibo Ring Road

During stakeholder engagement with the village leader and elders of the Uturu Isiala Community, a critical environmental issue was identified. The adjoining Uturu Road, located at a lower elevation near the Uturu Junction of the Eziama–Amibo Ring Road, becomes severely submerged during the rainy season. This road naturally serves as a drainage outlet for runoff from the Eziama–Amibo Ring Road. Consequently, this has led to significant erosion along the Uturu Road, widening the earth drainage constructed by the community and causing frequent flooding of adjacent farmlands. Rehabilitation activities proposed for the Eziama–Amibo Ring Road, particularly at the Uturu Junction, are expected to improve drainage in the area. However, without adequate runoff management measures, these activities may exacerbate the rate of inundation along the Uturu Road post-construction, as the volume and speed of runoff could increase. The low-lying terrain of the community and the current lack of robust drainage infrastructure mean that runoff from the upgraded road will inevitably flow into the Uturu Road, worsening existing flooding and erosion challenges. The area's topography directs runoff off the Eziama–Amibo Ring Road through Uturu Road, which slopes downward towards the lyi Ama Stream, a tributary of the Imo River. See Figure XX



along the Eziama-Amibo Ring Road.

4.3 Borrow Pit Identification and Management

Some existing borrow pits were identified in the course of baseline studies (See Annex 8). The borrow pits have been used in the past for previous road construction and are still currently being used for construction works undertaken by the Abia State Government. It is very likely that Contractors to be procured for the implementation of the intervention works may obtain earth materials (including laterite) from these borrow pits pending their conduct of independent geotechnical tests, etc. There is also the possibility of new borrow pits been excavated by Contractors. In a situation where pre-existing borrow pits are to be used by the AB-RAAMP Contractors, certain procedures need to be followed so as to manage the potential negative impacts of borrow pits but with modifications. These are enumerated subsequently.

Existing Borrow Pits

- The Supervisory Consultant (SC), AB-RAAMP PIU Safeguards Unit and Contractor should identify ownership of already existing borrow pits and make necessary formal arrangements to use them.
- Sections within the existing borrow pits where Contractors will be excavating earth should be barricaded such that it is clear that such an area has been occupied by the project and therefore will be reclaimed after completion of implementation works.
- Where there are socioeconomic, livelihood, or recreational activities happening around such borrow pits, there is need for stakeholder engagements, awareness and sensitization.
- Caution and safety signs should also be installed.
- Contractors should prepare a Borrow Pit Reclamation Plan prior to the commencement of civil works.
- Most suitable equipment should be selected and used for excavation so as to avoid adverse impacts on soil.

 In addition to barricading borrow pits, a temporary source of lighting may be provided to assure workers and community health and safety especially at night.

New Borrow Pits

- Contractors should obtain and show evidence of land lease or borrow pit acquisition from the owner (this is very important especially for future E&S safeguards audits).
- The entire vicinity of the borrow pit should be barricaded with the installation of caution and safety signs.
- Contractors should prepare a Borrow Pit Reclamation Plan prior to the commencement of civil works.
- Most suitable equipment should be selected and used for excavation so as to avoid adverse impacts on soil.
- In addition to barricading borrow pits, a temporary source of lighting may be provided to assure workers and community health and safety especially at night.

Figure XX below shows the spread and images of some existing borrow pits identified during the baseline studies. Annex XX shows the identified borrow pits and their geo codes.



2024, from 10:00am to 5:30pm daily. Figure 16 below provides a map showing the surface and groundwater and soil sampling locations while Table XX below shows the roads and streams where surface water samples were collected and their geo-coordinates.

S/N Name of Road	S/N	Name of Road
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1.	Nkata Alike Stream	3	
2.	Ekweze Stream	3	
3.	lyi Umuokpara	3	
4.	Awiwa Stream	3	
5.	Igwu River	3	
6.	Nchichi Stream	3	
7.	Ofe-lyi	3	
8.	Ifuama Stream	3	
9.	lyi Obowo	3	
10.	Umudere Stream	3	
11.	lyi Okpo	3	
12.	Nkporo stream	3	
13.	Ama-Iyi	3	
14.	Elechi Stream	3	
	Total Samples	42 Samples	



4.4.2 Surfac

Figure 16: Map of the Sampling Locations

A total of fourteen (14) surface water samples were collected from fourteen (14) streams along the 37 roads to be rehabilitated. Samples were collected during the dry season between 18th to 30th of November 2024. Each stream was sampled at three distinct sections: upstream, midstream, and downstream, resulting in a total of 42 surface water samples. Some of these streams include Nkata Alike Stream, Ekweze Stream, lyi Umuokpara, Awiwa Stream, Igwu River, Nchichi Stream, Ifuama Stream, Iyi Obowo, Umudere Stream, etc. The samples were collected using sterile dark colour-coded 100ml bijour bottles, stored in ice-packed coolers on field and preserved in refrigerators at 4°C prior to laboratory analysis. The samples were sent to the Abia State University, Uturu (Biochemistry Laboratory) for analysis including their chain of custody. Laboratory analysis was carried out for physiochemical parameters including Salinity, Total Dissolved Solids (TDS), Nutrient Level (Nitrogen and Phosphorus), Heavy Metals [Lead (Pb), Cadmium (Cd), Mercury (Hg), Arsenic (As), Cupper (Cu)], etc. and microbial parameters such as Total Coliforms, Faecal Coliform, E. Coli, Heterotrophic Plate Counts (HPCs), and Tetrahydrofuran (THF), etc. However, in-situ analysis was carried out real time, for fast changing physiochemical parameters such as Dissolved Oxygen (DO), pH, Temperature, Electrical Conductivity (EC), Turbidity, Total Suspended Solids (TSS), etc. using an Ultrameter II 6PFCE water analysis tool.

Results of Physiochemical Analysis of Surface Water Samples

The physiochemical analysis of surface water samples from 14 streams revealed that most parameters were within permissible limits, indicating generally good water quality. Electrical conductivity ranged from 5.8 to 750 µS/cm, well below the Maximum Permissible Limit (MPL) of 1500 µS/cm. Salinity levels varied from 25.2 to 100 mg/L, within the

MPL of 100 mg/L. Total Dissolved Solids (TDS) ranged between 18 and 700 mg/L, falling well below the MPL of 1200 mg/L. Other parameters such as phosphate, chloride, and sulfate also remained within acceptable limits, with phosphate levels ranging from 0.031 to 0.34 mg/L (MPL: 3.5 mg/L), chloride from 23.12 to 100 mg/L (MPL: 250 mg/ L), and sulfate from 41.1 to 145 mg/L (MPL: 250 mg/L). However, exceedances of certain parameters were observed in specific streams, likely due to anthropogenic activities prevalent in the surrounding rural communities. In Nkata Alike and Ekweze streams, pH levels at midstream were slightly below the acceptable range of 6.5 to 8.5, measuring 6.3 and 6.4, respectively. These lower pH values may be attributed to agricultural runoff, particularly from the use of fertilizers and chemicals, which can acidify the stream water. This deviation in pH can negatively affect aquatic life and reduce stream biodiversity. Turbidity levels exceeded the MPL of 50 NTU in Nkata Alike Stream, where the upstream and midstream measurements were 67 NTU and 64 NTU, respectively, and in Ekweze Stream's midstream, where it measured 60 NTU. The elevated turbidity is likely caused by increased sedimentation from poor land management practices such as deforestation, agriculture, local guarry operations and sand mining activities within the streams and surrounding communities. High turbidity can block sunlight, impairing photosynthesis and disrupting aquatic food chains. Salinity levels downstream of Ekweze Stream were recorded at 65 mg/L, exceeding the acceptable limit of 100 mg/L. TDS also exceeded permissible limits downstream of Ekweze Stream, where a value of 700 mg/L was recorded. Biochemical Oxygen Demand (BOD₅) levels were elevated in the upstream and midstream sections of Nkata Alike Stream, with values of 6.5 mg/L and 6.3 mg/L, respectively. These high BOD₅ levels suggest a higher presence of organic pollutants, which may stem from domestic waste disposal and agricultural runoff. Elevated BOD₅ depletes oxygen in the water, creating hypoxic conditions that can result in fish kills and the collapse of local aquatic ecosystems.

Results of Heavy Metals Analysis of Surface Water Samples

Heavy metal contamination was also observed, with cadmium, arsenic, and copper levels exceeding permissible limits in certain streams. Cadmium levels slightly exceeded the permissible limit of 0.01 mg/L at the downstream section of lyi Umuokpara Stream, with a reading of 0.0116 mg/L. While the exceedance is marginal, prolonged exposure to cadmium can be toxic to aquatic organisms and may accumulate in the food chain, posing risks to human health. Arsenic concentrations in Awiwa Stream were alarmingly high, with the highest level recorded downstream at 13.4027 mg/L. far exceeding the permissible limit of 0.05 mg/L. This contamination is likely a result of unregulated industrial activities, such as mining or improper disposal of waste (e.g. arsenic-based pesticides or wood/timber preservatives), which can introduce arsenic into the water. Arsenic is a potent carcinogen, and its presence in drinking water poses serious health risks to humans and wildlife. Copper levels were consistently elevated in Ivi Umuokpara and Awiwa streams, with the highest value recorded downstream of Ivi Umuokpara at 27.041 mg/L, well above the permissible limit of 0.01 mg/L. The elevated copper concentrations could be a result of agricultural runoff, particularly from the use of copper-based fungicides, as well as industrial activities. Copper toxicity can harm aquatic life, particularly freshwater organisms, and disrupt reproductive and metabolic processes. These exceedances highlight significant concerns regarding water quality, which appear to be closely tied to human activities in the surrounding rural communities. Detailed results and further analysis can be found in Table 21 and Annex 18.

Table 11: Physiochemical Values of Surface Water above the FMEnv/NESREA Maximum Permissible Limit

STREAMS	ENVIRONMENTAL PARAMETERS (FMENV/NESREA MAXIMUM PERMISSIBLE LIMIT {MPL})																							
	рН (6.5-8.5)			Dissolved Oxygen (mg/l)			Turbidity (NTU)			TSS (mg/L)			NH ⁴⁺ (mg/L)			N0³ (mg/L)			BOD₅ (mg/L)			COD (mg/L)		
	US	MS	DS	US	MS	DS	US	MS	DS	US	MS	DS	US	MS	DS	US	MS	DS	US	MS	DS	US	MS	DS
Nkata Alike Stream	6.6	6.3 **	6.5	3.3	3.7	4.1	67* *	64* *	50	0.5 4	0.5 1	0.4 2	0.0 5	0.0 6	0.1 1	1.1 1	1.1 6	1.1 5	6.5 **	6.3 **	6	34* *	33. 6**	33. 3**
Ekweze Stream	6.7	6.4 **	6.1 **	6.2	4.8	4.0 **	45	60* *	10	20* *	35* *	50* *	0.5	1.5	2**	10	25	3.8	4	8**	12* *	10	25	40* *

US = Upstream, MS = Midstream and DS = Downstream

 Table 12: Heavy Metals and Microbial Values of Surface Water above the FMEnv/NESREA Maximum Permissible

 Limit

STREAMS	ENVIRONMENTAL PARAMETERS (FMENV/NESREA MAXIMUM PERMISSIBLE LIMIT {MPL})																				
	Merc mg/L	ury (0.0)	05	Cadmium (0.01 mg/l)			Arsenic (0.05 mg/l)			Copper (0.01 mg/l)			Total coliforms cfu/100ml			Faecal coliforms cfu/100ml			E. coli cfu/ 100ml		
	US	MS	DS	US	MS	DS	US	MS	DS	US	MS	DS	US	MS	DS	US	MS	DS	US	MS	DS
Nkata Alike	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.7* *	2.5* *	2.5* *	0.2* *	0	0	0.2 **	0	0
Ekweze Stream	0.0 001	0.0 003	0.0 01	ND	ND	ND	0.01	0.03	0.05	0.00 5	0.01 5	0.02 5	8.9 5**	9**	9.0 5**	1.9 8**	2**	2.02* *	0.1 **	0.1 **	0.1 **
lyi Umuokpara	ND	ND	ND	0.0 056	0.0 086	0.01 16**	ND	ND	ND	26.4 41**	26.7 41**	27.0 41**	1.5* *	3.2* *	5.6* *	0.8* *	2.5 **	4.1**	0.9 **	2.8 **	4.5 **
Awiwa Stream	ND	ND	ND	ND	ND	ND	12.8 027*	13.1 027**	13.4 027*	25.7 227*	26.1 227**	26.5 227**	2.1* *	4.7* *	6.9* *	1.2* *	3.6 **	5.3**	1.3 **	3.4 **	5.0 **
lgwu River	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00 8	0.00 9	0.00 8	1.5* *	2.0* *	2.3* *	0.8* *	1.0 **	1.2**	0.3 **	0.4 **	0.5 **
Nchichi Stream	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00 9	0.01 0	0.00 9	2.3* *	2.5* *	2.6* *	1.1* *	1.2 **	1.3**	0.5 **	0.6 **	0.7 **
Ofe-lyi	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00 7	0.00 4	0.00 3	8.5 2**	9**	9.4 8**	2.6 4**	3**	3.36* *	1.7 **	2**	2.2 9**
lfuama Stream	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00 3	0.00 6	0.00 6	13. 7**	14**	14. 3**	4.6* *	5**	5.4**	1.7 **	2**	2.3 **
lyi Obowo	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00 1	0.00 3	0.00 5	0.0 03**	2.7* *	2.0 5**	0	0.5 **	0	0.2 **	0.5 **	0
Umudere Stream	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.01	0.01	0.00 9	0.0 09**	0.0 1**	0.0 09*	1.4 58*	1.5 **	1.54 2**	0	0	0.1 **
lyi Okpo	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00 5	0.00 4	0.00 6	7.0 07**	7.0 01**	6.9 03* *	3**	3.5 **	4**	1.2 **	1.5 **	1.8 **
Nkporo stream	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.01	0.01	0.01	0.0 1**	0.0 09**	0.0 1**	4**	4.5 **	5**	1.7 **	2**	2.3 **
Ama-Iyi	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00 1	0.00 4	0.00 41	4**	4.2* *	4.1* *	0	0	0.2**	0.7 8**	0.6 9**	0.6 6**
Elechi Stream	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00 9	0.01	0.01	7.2* *	8.0* *	8.4* *	1.8* *	1.8 9**	2.3**	0.1 **	0.2 **	0.8 **

US = Upstream, MS = Midstream and DS = Downstream

For document succinctness, Table 22 and 23 above provided information on sample parameters which exceeded the FMEnv/NESREA permissible limit. Samples which exceeded the permissible limits are asterisked (**) and are highlighted in red fonts. The full result of the surface water analysis inclusive of other parameters analyzed is provided in Annex 18.

Microbial Analysis of Surface Water

The microbial analysis reveals significant exceedances of FMEnv/NESREA permissible limits across several streams, with concerning trends observed for total coliforms, fecal coliforms and *E. coli*. The highest total coliform concentrations were recorded in Ifuama Stream, ranging from 13.7 to 14.3cfu/100mL, followed by Ekweze Stream with values between 8.95 and 9.05cfu/100mL, both far exceeding permissible levels. Fecal coliform contamination was also high, particularly in Ifuama Stream, with levels reaching 5.4cfu/100mL, and Nkporo Stream, where concentrations peaked at 5cfu/100mL. Elevated *E. coli* counts were notable in Ifuama Stream and Nkporo Stream, with both reaching a maximum of 2.3cfu/100mL. The progressive increase in microbial loads from upstream to downstream in multiple streams highlights the significant influence of anthropogenic activities and a direct fecal contamination by human or animal waste on water quality. Detailed results are provided in Annex 18.

4.4.3 Groundwater Analysis

Ground water samples were collected from boreholes and wells within a 1km radius from roads to be rehabilitated using sterile dark coloured 100ml bijour bottles. Samples for heavy metals and physiochemical studies were also collected in their respective coded plastic containers and stored in ice-packed coolers. Samples were preserved in refrigerators at 4°C prior to laboratory analyses. Laboratory analysis was carried out for physiochemical parameters such as Total Suspended Solids, Ammonia, Sulphate, Calcium, Chloride and Phosphates; and Heavy Metals such as Lead (Pb), Iron (Fe), Chromium (Cr), Cadmium (Cd), Zinc (Zn). Fast changing physiochemical parameters such as pH, Turbidity, Electrical Conductivity, and TDS etc. were measured in-situ using an in-situ water analyzer. Similarly, microbial analysis was carried out for parameters such as *Faecal coliform, E. coli, Enterobacter aerogenes, Salmonella spp., Pseudomonas aeruginosa* and *Shigella spp.*

Physiochemical and Heavy Metal Properties of Groundwater Samples

Results of the laboratory analysis of samples collected from boreholes and wells within a 1km radius from the roads to be rehabilitated revealed that the physiochemical and heavy metal parameters analyzed were all within the FMEnv/NESREA limits. Refer to Annex 18 for details

Microbial Characteristics of Groundwater Samples

The microbial analysis of groundwater samples collected from boreholes and wells within a 1 km radius of the rural roads revealed contamination levels exceeding the FMEnv permissible limits. Predominant bacterial organisms included faecal coliforms (1–5 cfu/ml), *Escherichia coli* (1–3 cfu/ml), *Enterobacter aurogenes* (1–2 cfu/ml), and *Bacillus species*. These findings are concerning as the permissible limit for all these micro-organisms is 0 cfu/ml, thus indicating possible faecal contamination of the groundwater. The exceedances may be attributed to vertical infiltration from inadequately designed pit toilets and poorly maintained septic systems. The high permeability of the soil in the region likely facilitates the movement of bacteria and other contaminants from surface sources into the groundwater. In addition, the absence of adequate buffers or protective measures around water points further exacerbates the risk of contamination. Communities such as Nkwebi Onwuwanyanwu, Lomara, Amiyi, and Amankalu reported consistent bacterial presence in their groundwater samples. These areas are characterized by limited access to improved sanitation facilities. The presence of faecal coliforms and *E. coli* in groundwater poses significant public health risks, including the potential for outbreaks of waterborne diseases such as diarrhea, cholera, and typhoid. Chronic exposure to such contaminants can lead to long-term health issues, particularly in vulnerable populations such as children and the elderly. Refer to Annex 18

4.4.4 Soil Sample Collection Procedure and Analysis

Eleven (11) topsoil samples, within a depth of 0–15 cm, were collected across the 37 roads earmarked for rehabilitation spanning 11 LGAs using a purposive stratified sampling approach¹⁴. Some of the roads where soil samples were collected include Upgrade Roads (UR): Achara – Okpo – Nkporo – Ututu, Okagwe – Nkwebi Onwuwanyanwu, Orie Ngodo Market - Obinohia Umudim – Lomara, Amorji Market Road – Amorji Junction, Nkwo

¹⁴ This method was employed to ensure representative sampling from each LGA, recognizing that soil composition may not significantly vary within individual LGAs but could differ between them. The stratification into LGAs allowed for comprehensive geographic coverage, while purposive selection ensured that each LGA was represented adequately. This approach was informed by the need to capture spatial variability across the study area, balancing practicality and analytical feasibility, given the wide distribution of roads across Abia state.
Ebe – Umunko – Umuakwu etc. Spot Improvement (SI): Amaokwelu Alayi Junction – Amankalu – Akoli Imenyi, Okpikpe Umuana – Ikot Ekpene Road, Umuanyaso Road. Samples were collected using a manual soil auger from 20th – 30th November 2024. These were preserved in coded plastic bags (high UV-resistant material) after being wrapped in aluminium foil. The soil samples were further sent to the Abia State University (Biochemistry Laboratory) for analysis including the chain of custody.

Physiochemical and Heavy Metal Properties of Soil Samples

The analysis of physiochemical and heavy metal properties in soil samples from rural roads demonstrates that most physiochemical parameters, such as pH (6.48-6.90), moisture content (14.5-15.4%), and electrical conductivity (32.6-36.5 µS/cm), fall within permissible limits, indicating stable soil conditions suitable for agricultural and ecological purposes. However, heavy metal concentrations, particularly Cadmium (Cd) and Chromium (Cr), exceeded the Department of Petroleum Resources (DPR) and FMEnv permissible limits in specific locations. Cadmium, recorded at 0.04 mg/kg in UR-20 (Agalabano – Umuhu Central School – Ekeoba) and SI-9 (Ahiaukwu – Amangwo – Umuajata – Umudere Road) surpassed the permissible limit of 0.03 mg/kg, likely attributable to agricultural runoff and improper disposal of industrial and domestic waste. Chromium concentrations at 0.06 mg/kg at Agalabano - Umuhu Central School - Ekeoba (slightly above the 0.05 mg/kg threshold) may suggest contributions from agrochemical applications or natural mineral deposits in the soil. Microbial contamination was also evident, with faecal coliforms reaching 10 cfu/100 ml in UR-9 (Amorji Market Road – Amorji Junction) and SI-9 (Ahiaukwu – Amangwo – Umuajata – Umudere Road), and E. coli detected consistently at 2 cfu/100 ml for most of the locations, exceeding the permissible limit of 0 cfu/100 ml. These results strongly suggest anthropogenic pollution, likely stemming from open defecation, agricultural runoff containing animal waste, and inadequate waste management practices. The implications of these exceedances are profound. Elevated heavy metals can impair soil fertility and pose health risks through bioaccumulation in crops, potentially entering the food chain. Microbial contamination compromises soil quality and presents risks of waterborne diseases if the runoff reaches water bodies. The findings reveal the need for effective waste management practices, regulation of agrochemical usage, and environmental monitoring to mitigate contamination and protect soil health. Refer to Table 22 for detailed results.

Table 13: Physiochemical Values of Soil below and above the FMEnv Maximum Permissible Limit												
Parameters	UR-1	UR-4	SI-2	UR-7	UR-9	UR-18	SI-12	UR-16	UR-13	UR -20	SI - 9	DPR/
	Date: 21/11/24 Time: 10:56am	Date: 23/11/24 Time: 10:40am	Date: 23/11/2 4 Time: 12:56p m	Date: 30/11/24 Time: 12:38pm	Date: 28/11/24 Time: 11:21am	Date: 29/11/2 4 Time: 10:50a m	Date: 20/11/24 Time: 2:24pm	Date: 20/11/24 Time: 10:59am	Date: 29/11/24 Time: 10:30am	Date: 30/11/2 4 Time: 02:26p m	Date: 29/11/24 Time: 3.49pm	FMENV
рН	6.62	6.59	6.63	6.68	6.75	6.80	6.55	6.70	6.48	6.85	6.90	6.5-8.5
Moisture content (%)	15.3	14.6	15.4	14.5	14.9	14.8	15.2	14.8	15.1	14.7	15.0	-
Organic matter content (%)	3.1	3.2	3.0	3.1	3.0	3.0	3.0	3.1	2.9	3.2	3.1	-
Electrical cond. (µS/ cm)	32.9	35.0	34.4	33.7	34.1	33.8	35.4	32.6	33.2	34.7	36.5	100
Salinity (mg/ Kg)	2.21	9.06	3.53	3.26	2.91	7.84	2.7	2.05	7.37	9.06	2.1	-
NH₄⁺ (mg/ Kg)	4.13	0.29	1.19	4.31	4.38	0.14	3.97	3.62	4.03	0.94	0.82	-
Nitrogen (%)	0.12	0.14	0.13	0.11	0.13	0.20	0.19	0.16	0.1	0.1	0.15	-
Phosphorus (mg/Kg)	10.5	9.3	8.0	12.7	9.9	7.6	9.7	7.9	8.2	7.9	9.0	-
Potassium (Meq/100g)	0.45	0.6	0.5	0.5	0.54	0.39	0.47	0.4	0.37	0.4	0.42	-
Base saturation (%)	65.4	65.0	65.5	64.6	65.1	64.9	65.0	64.8	65.3	64.7	65.2	-
CEC (Meq/ 100g)	13.1	10.4	12.4	17.3	12.1	12.2	11.9	18.9	12.1	12.0	12.1	-
Pb (mg/Kg)	0.9	0.6	0.4	0.2	2.2**	1.9	2.0	2.1**	0.9	1.4	2.6**	2
Cr (mg/Kg)	0.03	0.05	0.04	ND	0.04	0.05	0.04	0.05	0.03	0.04	0.06**	0.05
Cd (mg/Kg)	ND	0.03	0.02	0.01	0.03	0.03	0.02	0.03	0.03	0.04**	0.04**	0.03
Ni (mg/Kg)	0.05	0.06	0.07	0.05	0.07	0.04	0.06	0.05	0.04	0.07	0.06	0.07
Cu (mg/Kg)	45.2	50.6	48.7	47.1	46.5	35.2	36.8	48.3	55.7	49.3	66.5	2.0-100
Total coliforms cfu/ 100ml	13**	10**	12**	12**	18**	13**	10**	8	14**	13**	19**	<10
Faecal coliforms cfu/100ml	8**	5**	6**	6**	10**	7**	5**	0	8**	7**	10**	0
E. coli cfu/ 100ml	2**	2**	2**	1**	2**	1**	2**	1**	2**	2**	1**	0
HPC cfu/ 100ml	2.6 x10 ²	1.8 x10 ²	2.2 x10 ²	1.9 x10 ²	1.7 x10 ²	2.2 x10 ²	2.7 x10 ²	1.0 x10 ²	2.0 x10 ²	2.3 x10 ²	3.0 x10 ²	-
THF cfu/ 100ml	1.9 x10 ²	1.7 x10 ²	1.0 x10 ²	1.8 x10 ²	1.6 x10 ²	1.9 x10 ²	1.7x10 ²	1.3 x10 ²	1.2 x10 ²	1.1 x10 ²	1.1 x10 ²	-

UR= Upgrade Road; SI = Spot Improvement, ND = Not Detected; 1, 2, 3, etc. The values represented in asterisk (**) and highlighted in red indicates parameters which exceeded the FMEnv permissible limits.

4.4.5 Air Quality

Air quality levels were measured at strategic locations along the proposed roads corridors. Factors considered includes sections of the road in proximity to: a) local communities, churches, schools, etc. b) socioeconomic clusters (markets, business premises, artisanal shops, etc.) etc. Air quality measurements were taken across 98 locations. The results for the air quality parameters (CO, NOx, SOx, NH₄, H₂S, VOC, SPM 2.5, SPM 10, SPM Total) measured showed parameters are within permissible limits – CO (10), NOx (0.04 - 0.06), SOx (0.01), NH₄ (0.2), H₂S (0.008), VOC (0.1), SPM 2.5 (80), SPM 10 (250), Total (250) as shown in Annex 25. This could be largely attributed to absence of industrial activities and reduced vehicular movements around the roads proposed for intervention.

4.4.6 Noise Level

Accordingly, noise levels were measured at the same sampling stations as those used for air quality measurements. Measurements were carried out across 98 locations. The results show that noise levels ranged from 23dB – 51dB, which were all within the National Environment (Noise Standard and Control) Regulation of 55dB (day). This could be attributed to the rural/semi-urban nature of the areas, void of industries and minimal vehicular movements due to the bad roads. Results are presented in Annex 25.

4.4.7 Biodiversity (Vegetation and Wildlife)

It is noteworthy to state that baseline information on vegetation has been captured for each of the respective road lengths in tables 17, 18 and 19. There was no wildlife observed during the study, however, in line with the generic wildlife information provided in table 15 above, some locals stated that reptiles (snakes, monitor lizards), birds, some monkey species and bats have been sited. However, this is rare or occasional. Generally, there is little or no site-specific information or siting of local wild life. No endemic or endangered flora/fauna were discovered within and around the project corridors (roads/communities) during site visits and baseline studies.

4.4.8 Climate Change Considerations and Resilience of the Roads

Climate change poses significant challenges to rural road rehabilitation, particularly in areas with existing vulnerabilities. The prevailing baseline conditions (such as topography, soil type, presence and adequacy of hydraulic infrastructure, and proximity to flood-prone zones, flood plains, etc.) could also amplify the occurrence and severity of climate change impacts. Field assessments undertaken across all project locations have identified flooding and erosion as the two primary climate change hazards impacting most rural roads. Broadly, Abia State falls within the moderate to high flood risk zones of Nigeria, according to the Nigeria Meteorological Agency (NIMET) GIS/Remote Sensing Monthly Review Bulletin for October 2024 forecast (See Figure XX). Specifically, baseline studies indicate that 97% of the roads surveyed (36 out of 37) are vulnerable to flooding across the locations include: inadequate or absent drainage systems, low-lying terrain, and high precipitation intensity, while erosion is primarily driven by steep gradients, inadequate water management infrastructure, and vegetation loss (See Table XX).



Table 14: Flood and Erosion Vulnerability of the Roads Including their Risk Factors.

Intervent	Road Name	Flood Vulnerability		Erosion Susceptibility		Risk Factors		
юп туре		Flooding Due to No or Inadequate Drainage, Culvert, or	Flooding Due to Soil Type	Flooding Due to Proximity to Flood Plains	Flooding Due to Gradient or Topograph	Erosion Due to Steep Terrain or Inadequat	Erosion Due to Soil Type or Vegetatio	
Roads Upgrade	Achara–Okpo– Nkporo–Ututu	Ves Yes	× No	X No	Yes	Ves 🗸	Ves 🗸	Very Steep Slopes, poor drainage and absence of culverts cause erosion and waterlogging, making the conditioned between the state of th
	Umeye I– Umeye II	Ves Yes	XNo	X No	Yes	XNo	X No	Water stagnation at low points due to lack of culverts; road becomes muddy and inaccessible during rainy seasons. This road is not predisposed to erosion.
	Obinto-Atani	Ves 🗸	XNo	XNo	Yes	XNo	× No	Flooding at critical locations caused by inadequate drainage; culverts are required for proper runoff
	Okagwe– Nkwebi	Ves 🗸	× No	XNo	Yes	Ves 🗸	Ves 🗸	Erosion on steep, sloppy terrain leading to the stream due to high runoff velocity; flooding alsoo caused by indepute designed facilities
	Sameke Junction-	Ves Yes	No	XNo	Yes	Ves 🗸	Ves 🗸	Lack of drainage leads to surface runoff and erosion; culverts needed at the lowest point to manage
	Obinulo– Umumaduako–	Ves Yes	× No	XNo	Yes	Ves 🗸	Ves 🗸	Lowered road elevation and blocked culverts cause sectional flooding; terminal section has severe gully
	Orie Ngodo Market– Obinohia	Ves Yes	XNo	X No	Yes	X No	× No	Poorly designed drainage and silted culverts contribute to flooding of some sections. This is exacerbated by household waste deposition.
	Amorji– Ngbedeala– Nticha Mhawai	Ves Yes	X No	XNo	Ves Yes	XNo	× No	Flat terrain, lack of natural watercourses, and inadequate drainage lead to sectional ponding.
	Amorji Market Road–Amorji	Ves Yes	X No	XNo	X No	× No	× No	Stagnant and clogged drainage at road entrance due to waste accumulation.
	Ogbagala Junction–	Ves 🗸	XNo	XNo	× No	XNo	X No	Absence of drainage infrastructure causes waterlogging during rainfall.
	Nbawsi– Agburuike– Umuomaiabiukw	Ves Yes	X No	XNo	Yes	Ves 🗸	Ves 🗸	Sandy, loose soil and lack of drainage infrastructure result in muddy and eroded sections.
	Amiyi Nvosi– Ometeghi– Umuada Nvosi–	Ves Yes	XNo	Yes	Ves Yes	X No	Ves Yes	A perennial stream crossing the road contributes to flooding during heavy rains.
	Nkwo Ebe– Umunkwo–	Ves Yes	X No	XNo	Yes	Ves 🗸	Ves 🗸	Poorly maintained drainage system and uneven grading lead to waterlogging and erosion.
	Umuakwu– Amachi–	Ves Yes	X No	XNo	Yes	Ves 🗸	Ves 🗸	Gully erosion and elevated drainage systems above road level limits its hydraulic eficiency and results in floading and road degradation
	Eziama–Amibo Ring Road	Ves	XNo	No	Yes	Ves 🗸	Ves Yes	Erosion-prone sections and inadequate drainage makes runoff management difficult. Further, runoff from elevated areas on the road flows to low-lying
	Agalaba Ise– Ahiamorie– Umuamadi–	Ves Yes	XNo	No	Ves Yes	× No	No	Inconsistent and poorly distributed drainage infrastructure causes waterlogging.
	Apumiri–Avo– Amibo Express	Ves 🗸	XNo	XNo	XNo	XNo	× No	Ineffective drainage and open waste dumping contribute to flooding risks.
	Agalabano– Umuhu Central	Ves Yes	XNo	XNo	Ves Yes	XNo	× No	No existing drainage to aid runoff management, low- lying sections. Poor settlement patterns.
	Umuawoli Road	XNo	XNo	XNo	× No	XNo	XNo	Not prone to significant erosion or flooding due to sparse settlement and low-impact natural terrain
	Ogbodioriloku– Umuchiche– Mbaraukwu	Ves Yes	XNo	XNo	Ves Yes	Ves 🗸	× No	Poor drainage infrastructure and silted culverts exacerbate formation of grooves, rill erosion and flooding, especially in sloped areas.
	Umuariama– Ahiaba Ubi– Nkwo Elechi Pood	Ves Yes	XNo	XNo	Ves Yes	XNo	XNo	Flat terrain causes runoff to stagnate, resulting in persistent flooding during the rainy season; existing drainage overflows due to no natural surface water to aid the release of runoff.

Intervent	Road Name	I Name Flood Vulnerability		Erosion Su	sceptibility	Risk Factors		
ion iype		Flooding Due to No or Inadequate Drainage, Culvert, or	Flooding Due to Soil Type	Flooding Due to Proximity to Flood Plains	Flooding Due to Gradient or Topograph	Erosion Due to Steep Terrain or Inadequat	Erosion Due to Soil Type or Vegetatio	
	Nkwo Elechi– Umuagu– Umuorukwu–	Ves Yes	XNo	XNo	Ves Yes	Ves Yes	× No	Absence of drainage infrastructure and a flat topography leads to sectional waterlogging, particularly at low point along the road.
	Nkwo Elechi Market–	Ves Yes	XNo	XNo	Ves 🗸	XNo	XNo	Lack of drainage infrastructure leads to waterlogging and muddy conditions impacting road usability.
	Umuagu Ohuru Amaisii–Osaa Ukwu–Itungwa	Ves Yes	XNo	× No	Ves 🗸	Ves 🗸	× No	Silted and weed-obstructed culverts reduce drainage functionality and results in flooding and localized erosion at critical low points.
	Asa Umunka– Umugo–Ameyi Oza–Ozanta–	Ves Yes	X No	XNo	Ves Yes	XNo	× No	Waterlogging occurs due to a lack of drainage infrastructure, particularly during heavy rains.
Spot Improve ment	Ozara Market Junction – Amaoku Alayi –	Ves Yes	Ves 🗸	X No	Ves 🗸	Ves 🗸	Ves 🗸	Lack of drainage infrastructure, clayey soil, and surface water accumulation causing erosion and flooding.
Roaus	Amaokwelu Alayi Junction – Amankalu –	Ves Yes	Ves 🗸	× No	Ves Yes	Ves 🗸	Ves 🗸	Absence of drainage, clayey lateritic soil, undulating terrain, and failed CDS at Igwu River bridge.
	Alayi – Ezeukwu Road	Ves 🗸	Ves 🗸	X No	Ves 🗸	Ves 🗸	Ves 🗸	Erosion degrading culvert edges; low-lying sections lead to water puddling and muddy conditions.
	Ezeukwu – Ugwueke Road	Ves Yes	Ves	X No	Ves	Ves 🗸	Ves 🗸	Inadequate drainage causes waterlogging; collapsed bridge leads to marshy conditions near low-lying
	Bende Etitiulo – Ubibia – Ndiwo – Itumbuzo –	Ves Yes	Ves 🗸	Ves 🗸	Ves 🗸	Ves 🗸	Ves 🗸	Lack of drainage, eroded slopes, gully erosion, and waterlogging during rains
	Amaogwugwu Olololo Junction – Umukabia	Ves Yes	XNo	X No	Ves 🗸	Ves 🗸	Ves 🗸	Improper drainage alignment causes flooding; elevation of channels higher than road worsens water stagnation.
	Umuafiaka – Umuokpara	Ves Yes	Ves 🗸	XNo	Ves 🗸	Ves 🗸	Ves Yes	Steep slopes and inadequate drainage lead to erosion and rill formation; stream crossing lacks
	Old Umuahia (Divinity School) – Osah/Ohia	Ves Yes	Ves Yes	No	Ves Yes	Ves 🗸	Ves 🗸	Lack of drainage causes waterlogging and muddy sections, especially during the rainy season.
	Ahiaukwu – Amangwo – Umuajata –	Ves	Ves Yes	Ves Yes	Ves Yes	Ves Yes	Ves 🗸	Floodplain near lyi Nkpurute stream leads to seasonal overflow and erosion due to inadequate infrastructure.
	Okpikpe Umuana – Ikot Ekoopo Pood	Ves	XNo	XNo	Ves	XNo	× No	Poor and insufficient drainage, silted culverts and side drains, and surface ponding due to flat terrain.
	Umuanyaso Road	Ves Yes	XNo	× No	Ves	XNo	XNo	Minimal waterlogging observed at low points along both roads, particularly due to absence of drainages.
	Umuegwere Road	Ves	XNo	X No	Ves	XNo	X No	

Potential Climate Change Impacts on the Roads

Table 15 outlines the key climate change hazards/events and their potential impacts on rural roads. These impacts highlight the critical vulnerabilities that need to be addressed to ensure the resilience and longevity of the road infrastructure.

Table 15: Climate Change Hazard/Events and their F	Potential Impacts on the Rural Roads.
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Climate Change Hazard/Events	Potential Impact on the Roads
Flooding	 Damage to, or inaccessibility of low-lying areas due to water accumulation, particularly in areas without adequate drainage or hydraulic structures. Submersion of roads leading to temporary inaccessibility. Waterlogging in poorly graded areas, increasing maintenance requirements. Disruption of access to economic centres, markets, and critical facilities.
Erosion	 Formation of gullies, undermining the structural integrity of road embankments and pavements and preventing accessibility. Loss of topsoil and vegetation, leading to further slope instability. Sedimentation in nearby water bodies, affecting aquatic ecosystems and water quality.
Strong Windstorm	 Damage to auxiliary infrastructure such as safety signages, traffic signals, etc. Increased risk of tree falls along roads with vegetation encroachment, obstructing roadways and causing potential safety hazards.
Rising Intensity of Precipitation and Extreme Rainfall Events	 Overflow of drainage systems and culverts, leading to road flooding and erosion. Slope destabilization/failures, particularly on hilly terrains. Rills and gully formations along poorly drained roads. Increased soil moisture levels, reduced soil cohesion, and heightened seepage and infiltration through the road structure (thin asphalt) can weaken the road body and compromise its stability. This could result in an accelerated wear and tear of asphalted surfaces, reducing road life and increasing repair costs. Erosion and scouring or washout of edges of CDS or other works for river crossings. Overwhelmed drainage system exceeding their capacity, thus leading to increased erosion/ widening. Sediment and waste deposition in culverts and drains, requiring frequent desilting.
Higher Maximum Temperature and Frequency of Consecutive Hot Days (Heat Waves)	 Softening, cracking, and rutting of asphalt, compromising pavement integrity. Bleeding of asphalt surfaces, leading to slippery conditions and safety concerns. Expansion of unsealed road cracks, making them more vulnerable to further degradation during subsequent rainy periods.

Note: The mitigation measures for these potential impacts are addressed in Chapter 6: ESMP; Section XXX

Climate Change Impacts Attributed to the Proposed Road Rehabilitation Activities

In addition to the existing conditions at the project areas, some planned civil work activities to be implemented during the rehabilitation phase as well as the operation of the road may contribute to climate change impacts. Some of these activities include:

- Widening the Shoulders of Existing Roads: The proposed road rehabilitation and upgrade will involve the widening the existing roads and clearing adjacent trees to accommodate increased traffic. This felling/ deforestation releases stored carbon dioxide (CO₂) into the atmosphere, contributing to greenhouse gas emissions and climate change. It could also predispose the soil within and around the area to erosion.
- Land Clearing, Excavation and Use of Heavy-duty Equipment and Machinery: Proposed civil works such as land clearing, excavation, and construction machinery operations can generate greenhouse gas emissions, particularly carbon dioxide (CO₂) from fuel combustion. These emissions contribute to global warming and climate change.

Refer to Chapter 7 and Annex 29 for mitigation measures for flooding and erosion and Best Practices to address climate change impacts respectively.

4.5 Socioeconomic Baseline Studies (SEBS)

Collection of Primary Data: A comprehensive socioeconomic baseline study was conducted to assess the existing conditions within the rural communities along the project corridors. To collect primary data, the convenience sampling¹⁵ method was adopted due to its practicality, considering accessibility to respondents, geographical proximity, and willingness to participate. While this method allowed for broad engagement, its limitations, such as potential sampling bias, were acknowledged and mitigated by ensuring the representation of diverse respondents across gender, age and occupational groups.

Survey Methodology: Semi-structured questionnaires¹⁶ were administered to respondents across the project communities. Respondents included community elders, women and youth groups, business owners, farmers, fishermen, and stream users, so as to ensure that diverse perspectives were captured. The survey targeted a uniform sample size of 25 respondents per road, but this was not consistently achieved due to factors such as stakeholder availability, geographical accessibility, varying community populations, and the absence of settlements along some roads. The number of respondents per location ranged from 15 to 25, with a total of 865 respondents surveyed across all roads under the work packages (i.e. Spot Improvement and Upgrades). The questionnaires explored themes such as household demographics, livelihood activities, access to infrastructure and social services, and perceptions of the proposed road rehabilitation project. To ensure data reliability, interviews were supplemented with field observations and consultations with local leaders and stakeholders.

Survey Results:

Socioeconomic Parameter	Survey Results
Gender Distribution: Across the project locations, gender distribution reveals 54% male (467 respondents) and 46% female (398 respondents). The nearly balanced distribution reflects the gender composition of the communities and reveals active participation of both men and women in providing insights into local socioeconomic conditions. Project planning must consider how the road improvements will address the distinct needs of men and women in the community and cater to gender-specific economic roles. For example, road rehabilitation may enhance access to markets for female traders or improve transportation for male-dominated agricultural activities. Additionally, the ESMP shall include strategies to promote gender inclusivity in hiring practices, so as to ensure that women can access skilled and unskilled labour positions traditionally dominated by men.	

¹⁵ Convenience sampling is a qualitative research sampling strategy that involves selecting participants based on their accessibility and availability to the researcher. This can be due to geographical proximity, availability at a given time, or willingness to participate in the study.

¹⁶ A semi-structured questionnaire was prepared and administered to 15 – 25 respondents per road (with 15 being the minimum). All administered questionnaire was retrieved and analysed to estimate socioeconomic conditions within the project communities. Refer to Annex XX for the questionnaire used for the survey.

Socioeconomic Parameter	Survey Results
Age of Respondents: The surveyed population consisted of diverse age groups, with a significant portion being elderly persons (38%) falling within the 60 – 75 age brackets. Meanwhile, 29% were teenagers or youths, 27% were middle-aged, and 6% were old aged spanning the age ranges of 15 – 40, 40 – 60, and >75 years respectively. The study findings suggest that there may be a higher proportion of elderly/older individuals within the project communities who could be more sensitive to certain environmental or social changes attributed to the proposed road rehabilitation activities, such as disruptions to their living environment (physical and economic displacement) or access to essential services (healthcare, social services, recreation and leisure spots). Additionally, elderly individuals are more susceptible to health risks from dust, noise, and vibrations which may likely occur as a result of the proposed road rehabilitation, such as phased construction (e.g. sectionalizing civil work activities), health and safety measures and ensuring uninterrupted access to essential services. Further to the above, the 29% youth population represents a key demographic for skilled and unskilled labour. Abia RAAMP shall ensure that youths within the host communities are prioritized for job opportunities, so as to foster economic inclusion and development of local content.	
Education & Literacy Rate: In terms of education and literacy level, the socioeconomic study indicated a significant level among the sampled population, which has positive implications for the project. Approximately 88% of respondents had formal education, with varying levels of attainment. Specifically, 40% had acquired First School Leaving Certificates (FLSC), 28% had Junior Secondary School Certificate Examination (JSSCE), 14% had O'Level Certificates, 5% had National Certificate Examination (NCE)/ Ordinary National Diploma (OND), and 1% held a University Degree/Higher National Diploma. Conversely, the minority, comprising about 12% of the surveyed group, had no formal education. The prevalence of formal education supports the use of oral, written and visual communication methods for community engagement and project awareness campaigns. The varied educational attainment also implies that local labour recruitment should align with the skill levels available, offering opportunities for unskilled and semi-skilled individuals while considering capacity-building programs to address gaps. An educated populace can further facilitate smoother consultations, thereby fostering active participation in decision-making and ownership of the project's outcomes.	
<u>Religious Affiliations:</u> The survey findings highlighted two primary religious affiliations among respondents: 96% (830) identified as Christians, and 4% (35) practiced the African Traditional Religion (ATR).	

Socioeconomic Parameter	Survey Results
Marital Status: Regarding marital status, 44% (381) of respondents were married, 32% (277) were single, and approximately 18% (156) were widows or widowers. Additionally, about 6% (52) of respondents reported being divorced. With 44% of respondents married, the majority of households are likely to have dependents, making it essential to consider the broader family-level impacts of construction activities, such as disruptions to mobility and access to services.	
Family Pattern & Size: The socioeconomic analysis indicates that the extended family structure is the predominant family pattern along the project corridors, with an average of approximately 81% of respondents practicing this system. Nuclear family structures account for about 15% of households, while only 4% of respondents live alone (solitary/single-person household). The typical family size is large (>7 members), with most households comprising more than seven members. This implies a strong communal living dynamic and the potential for larger households to experience cumulative impacts from the project.	

Socioeconomic Parameter	Survey Results
Income Levels & Livelihood Activities: The survey further revealed a varied monthly income level among the surveyed group ranging from 0 – N100,000 (74%) to N100,000 – above (26%). Primary livelihood activities consist of crop farming (55%) (i.e. cultivation of crops such as maize, yam, cocoyam, millet, groundnuts, pepper, vegetables, etc.), animal husbandry (13%), and trading (16%) within the project communities. Other socioeconomic activities in the project communities, accounting for 16% of the sampled population, included civil service/white-collar jobs, block industry, artisans/craftsmanship (e.g. welding, carpentry, etc.), palm oil processing, local quarry/sand mining, hunting and lumbering/sales of firewood. See Figure 17 below	
The varied monthly income levels and primary livelihood activities indicate the economic dependence of the surveyed group on natural resources and agricultural activities. The proposed road rehabilitation may affect these livelihoods through land acquisition, changes in access to resources, or disruptions to traditional economic activities. Additionally, vulnerable groups, such as those with lower income levels or reliant on specific livelihood activities (e.g., crop farming, artisans), may be disproportionately impacted by the project. These groups may require special attention and support to mitigate adverse impacts and ensure they benefit from the project. Currently, AB-RAAMP is developing a RAP to capture and address issues related to physical and economic displacement attributed to the proposed road rehabilitation activities. It is strongly recommended that livelihood restoration programs such as providing alternative sources of income or training in new livelihood activities are implemented for vulnerable PAPs within the project communities. Furthermore, an adaptive monitoring and evaluation framework should be established by the AB-RAAMP SPIU to track the socioeconomic impacts of the project on different groups, including vulnerable age groups, and adjust mitigation measures accordingly.	
Health Conditions: In the aspect of health and prevalent disease conditions in the project areas, Malaria and Typhoid were the most predominant ailments, affecting 57% and 32% of respondents, respectively. Diarrhoea (1%) was reported, while Cough (8%) and Respiratory Disturbances (2%) were also reported. Construction activities can exacerbate existing health conditions by creating conditions for water stagnation (mosquito breeding sites) or increasing dust and air pollution (aggravating respiratory problems). The ESMP includes dust suppression measures, proper drainage systems, and regular site maintenance to mitigate these impacts. The findings emphasize the importance of providing healthcare provisions for construction workers, including protective measures against malaria and other prevalent diseases in the area. This could involve distributing repellents, ensuring access to potable water, and providing onsite medical assistance.	

Socioeconomic Parameter	Survey Results
Access to Financial Services: Further to the above, the study unveiled an inadequacy in access to financial services among the surveyed residents of the project communities. Approximately 32% of respondents are categorized as "unbanked," indicating a lack of access to formal banking services. These individuals rely hugely on their personal savings and traditional money lending facilitated through door-to-door collection methods. Furthermore, approximately 68% of households fall into the "underbanked" category, relying on alternative financial mechanisms. These alternatives include Point of Sale (POS) services, barter trading, Microcredits and the services of Micro finance Institutions (MFIs). The observed limited access to financial services in these localities is chiefly attributed to the remote nature of the communities and their considerable distance from established banking and financial institutions.	
Assessment of Road Conditions: The socioeconomic survey revealed that the majority of respondents (76%) rated the road infrastructure within and around the project communities as "poor," while 23% considered it "fair," and only 1% described it as "good." These findings/opinions reflect significant variability in road quality and maintenance across the project areas. It reveals a widespread dissatisfaction with existing road conditions and highlights the critical need for the proposed rehabilitation.	
Access to Potable Water & Sanitation: Access to water in the project communities is predominantly from streams and rivers (52%), followed by commercial boreholes (21%), hand pumps (12%), and wells (7%) (See Figure XX below). In some areas, private boreholes (6%) and water vendors (2%) are additional water sources. Regarding sanitation, the majority of households rely on pit toilets (54%), while open defecation in nearby bushes is common (33%). Only a small proportion of households (13%) reported using water closets for sanitation. The reliance on streams, rivers, and other non-potable sources highlights a significant risk of waterborne diseases, particularly during construction activities that may contaminate these sources e.g. construction/installation of CDS.	

Socioeconomic Parameter	Survey Results
Assessment of Waste Management Methods: At the household level, waste is primarily disposed of through informal methods, including dumping in nearby bushes or rivers, drainages and open burning. In some cases, organic household waste is repurposed for agricultural use, such as improving soil quality through composting or feeding domestic animals like dogs. From an administrative perspective, the Abia State Environmental Protection Agency (ASEPA) is officially responsible for waste management. However, community members report minimal impact or presence and coverage of their services. There is also a notable lack of formal or informal communication regarding waste management expectations or best practices.	
Access to Social Services (Education and Healthcare): The socioeconomic survey revealed mixed perspectives on access to education and healthcare services within the project communities. Schools in these communities are operational but widely perceived as insufficient to meet local educational needs. Similarly, access to public healthcare facilities received varied ratings: 39% of respondents rated it as "good," 38% as "fair," and 23% as "poor". Despite these challenges, most communities reported having functional primary healthcare centers. Communities closer to urbanized areas, such as Umuanyaso and Umuegwere Roads in Aba South LGA and Apumiri–Avo–Amibo Express and Eziama–Amibo Ring Road in Umuahia South, benefit from proximity to secondary healthcare facilities within a 5–10 km radius. These include notable institutions like the Abia State University Teaching Hospital (ABSUTH), Aba, Seventh-day Adventist Hospital, Ogbor Hill, Federal Medical Centre (FMC), Umuahia, and General Hospital Amachara.	
Local Mobility and Transportation Patterns: The survey indicates that walking (42%) and cycling (37%) are the predominant means of transportation among residents of the project communities. These preferences are largely influenced by the poor condition of the roads, which limits the use of motorized vehicles. Public transportation (15%) and private vehicles (6%) are the least utilized, thus reflecting limited access to or affordability of these options. Local mobility is primarily driven by agricultural activities, with most residents traveling between their homes, and farms. Additionally, there is significant movement to nearby town centres or more developed areas on designated market days (<i>Ahia Eke, Orie, Afor, and Nkwo</i>) for the sale of agricultural produce. The proposed road rehabilitation will improve mobility and support economic activities. Improved road conditions would enhance access to markets, reduce travel time, and promote the use of motorized transport, potentially boosting local trade and economic development. The survey results also reveal the importance of prioritizing the safety of non-motorized transport users such as pedestrians and bicyclists in the road design and construction, as these groups constitute the majority of road users.	
Local Leadership Patterns: Local governance within the project communities is structured at two levels. At the LGA-level, the LGA Chairmen serve as the primary authorities. Within the communities, leadership is provided by Paramount Rulers, locally referred to as "Onye Eze", and Clan Heads. These leaders are supported by service chiefs who represent them in the villages under their jurisdiction. These stakeholders play key roles in governance, decision-making, and grievance redress mechanisms within their communities.	

Socioeconomic Parameter	Survey Results
Assessment of Stream Usage: The socioeconomic survey and interviews conducted at streams along the roads revealed diverse uses of these water bodies by community members. Approximately 5% of respondents rely on the streams as a source of drinking water, while 35% primarily use them for domestic activities, including laundry, bathing children, dishwashing, and cleaning motorbikes. The streams also serve as critical resources for fishing (15%) and irrigation farming (13%). Additional uses include recreational swimming (11%), sand mining (9%), livestock watering (6%), and palm oil processing (6%). The results reveal the multifunctional role of the stream in the livelihoods and daily lives of the community. There is need to mitigate potential impacts on water quality and accessibility so as to ensure that the streams remain safe and accessible for these essential activities during and after the project, as construction activities could introduce sedimentation, pollution, or physical barriers that disrupt these vital uses.	

4.6 Gender and Gender Based Violence (GBV) Statistics

Abia State

According to records provided on ReportGBV¹⁷ – the National Gender-Based Violence dashboard of the Federal Ministry of Women Affairs to report on Violence Against Women and Girls (VAWG) in Nigeria, there are currently 232 reported incidences of GBV in Akwa Ibom State. Of the reported cases (largely constituting false calls, fatal cases, open and closed cases, etc.), 34.5% (80 cases) are closed, while 65.5% (152 cases) are open and unresolved. There are available referral pathways for victims of sexual assaults within the state. The main types of services provided by GBV service providers¹⁸ in the state include Psychosocial/Counselling (56.2%), Medical/health Care Services (26.5%), Livelihood/Social Welfare Services (2.6%) and Others¹⁹ (14.7%).

GBV Status at Project LGAs

The GBV status of the LGAs where the road rehabilitation activities will be carried out is provided in Figure 24 below.

¹⁷ Nigeria FMWASD – <u>ReportGBV</u>

¹⁸ Several GBV service providers were identified to be domiciled in the local government and communities some of which include: Excellence Community Educ. Welfare Scheme (Akwa Ibom), Family Empowerment and Youth Re-Orientation Path-initiative, Heartland Alliance Awka-Ibom, etc.

¹⁹ Other Services – Include Referral, Medical/Health Service, Education, Safe House/Shelter, Service of Police/Other Security Actors, Legal Assistance.



Figure 18: GBV Status (Open and Closed Cases) at Project Areas (LGAs)

CHAPTER FIVE

POTENTIAL IMPACTS AND MITIGATION MEASURES

5.1 Methods and Techniques in Assessing the E&S Risks and Impacts of the Proposed Road Rehabilitation Activities

The methodology and techniques used for identifying, assessing the potential E&S risks and impacts for the proposed roads rehabilitation in 11 LGAs under Phase 2 Intervention for the AB-RAAMP involved a "5-Step approach for impact identification in line with the Leopold Matrix. See Figure 25. The 5 steps applied are as follows:

Step 1: Impact Identification - Interaction between project activities and environmental and social sensitivities

- Step 2: Qualification of impacts positive/negative, Direct/Indirect/ Short/Long term, Reversible/Irreversible
- Step 3: Rating of Impact Likelihood
- Step 4: Degree of Impact Significance Major, Moderate, Moderately High, Moderately Low
- Step 5: Impact Assessment Matrix

Step 1: Identification of Potential Impacts

Potential impacts were determined based on anticipated interactions between project activities and major environmental and social sensitivities. The identification was done through technical examination of the scope and nature of construction works required, previous experience on similar jobs, concerns raised by stakeholders during focused group discussions and public consultations, and interactions with professionals and experts in the field. The environmental and social sensitivities likely to be affected by project activities are outlined below.

Environmental Components/Sensitivities considered included: Air Quality, Noise (Vibrations, Sound Waves, etc.), Surface water Quality, Ground water Quality, Soil Quality, Terrestrial habitats including fauna and flora.

Social Component/ Sensitivities considered included: Grievance redress and community affairs, Community health and safety, Economic activities, Employment, Education, Gender Inclusion, Land use pattern, Security risks, Property rights, Transport and traffic, religious activities, Cultural Resources and Involuntary Resettlement, Vulnerable Groups and Persons Living with Disability.

Step 2: Categorization of Impacts

In order to further qualify the impacts of the various project activities on the environment, the identified impacts were characterized based on the following beneficial, adverse, direct, indirect, cumulative, reversible, irreversible, residual, short-term and long-term impacts

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Step 3: Rating of Impact Likelihood This is an assessment of the probability of the effect occurring. The Table below illustrates evaluation/rating based on probability, likelihood and frequency of effect occurring.	
Table 24: Likelihood of Occurrence of Impact	
Impact Probability Likelihood Frequency	
High probability (80-100%) A very likely impact Very frequent impacts	
Medium high probability (60-79%) A likely impact Frequent impacts	
Medium probability (40-59%) A possible impact Occasional impacts	

Step 4: Degree of Significance At this stage, the impact rating is determined based on its significance / potential consequence. The Table below shows the impact significance with associated impact ratings.							
Table 25: Impact Significance with Associated Impact Ratings							
Impact Significance	Impact Ratings						
Major Significance	Major Impact						
Moderate Significance	Moderate Impact						
Minor Significance	Minor Impact						

Step 5: Impact Assessment Matrix

The final impact assessment was rated based on the likelihood of occurrence and potential consequence of the impact; after the rating of each impact, the determination of mitigation measures followed. Only moderate and major impacts were considered for impact mitigation. Continuous improvement practices will address low impacts. Figure 25 shows the Leopold Impact Risk Assessment Matrix.

		Potential consequences							
Likelihood	Positive		Negative						
		Hardly any	ardly any Little Considerable Gr		Great	Extreme			
High		Moderate	Moderate	Major	Major	Major			
Medium high		Minor	Moderate	Moderate	Major	Major			
Medium		Minor	Minor	Moderate	Moderate	Major			
Medium low		Negligible	Minor	Minor	Moderate	Moderate			
Low		Negligible	Negligible	Minor	Minor	Moderate			

5 . 2 Figure 19: Leopold Impact Risk Assessment Matrix

Potential Environmental and Social Impacts of the Proposed Project

The activities under the proposed intervention work packages (Spot Improvement and Upgrades) will lead to potential impacts on the environmental and socioeconomic status of the project locations. Some of these impacts will be beneficial and some negative. Specifically, beneficial impacts will include improvement in the physical conditions of the roads, reduction in travel time, increased security for travellers and other road users, access to markets, schools and essential social amenities, ease in navigating LGAs and small towns, etc. Additionally, other beneficial impacts will include ease in transportation of agricultural products and other commodities, creation of job opportunities for locals; especially the younger population to serve as watchmen, vigilantes and road supervisors. Nonetheless, the intervention works also have the potential to cause adverse E&S impacts on the biophysical and socioeconomic environment within the project corridors. These adverse E&S impacts should be managed through avoidance, removal, reduction, mitigation, compensation (where necessary), etc. and positive impacts enhanced to assure sustainability of the project. This section provides a summary of the identified potentially beneficial and negative E&S impacts associated with the intervention works. The area of influence was a 4km diameter (2km radii on both sides) from the proposed roads for rehabilitation.

3. Positive Environmental and Social Impacts

The proposed rural road rehabilitation is expected to bring significant environmental and social benefits to the project areas. These benefits, which contribute to the overall sustainability of the initiative, include but are not limited to the following:

- Proper drainage systems and culvert construction will mitigate risks of erosion and flooding. This is
 particularly relevant for locations such as Obinulo Umumaduako Umumezie Road, Bende Etitiulo –
 Ubibia Ndiwo Itumbuzo Okopedi Ntalakwu Road, Eziama Amibo Ring Road, Nkwo Elechi –
 Umuagu Umuorukwu Osusu Amaukwa Road, Amaokwelu Alayi Junction Amankalu Akoli Imenyi,
 Ezeukeu Ugwueke Road, etc.
- Priming and thin asphalting of the roads will enhance their surface integrity and structural durability (longevity). This reduces their susceptibility to erosion and minimizes fugitive dust generation, particularly during the operation phase.
- The rehabilitation of rural roads will facilitate the efficient transportation of agricultural products to markets, reducing post-harvest losses, thereby promoting sustainable farming practices and increasing economic opportunities for farmers.
- The project will enhance the technical and administrative capacity of institutions such as the AB-RAAMP State Project Implementation Unit (SPIU), as well as supporting state MDAs, Community-Based Organizations (CBOs), Non-Governmental Organizations (NGOs), and Development Partners. These entities will benefit from improved technical assistance, guidance, and monitoring of road rehabilitation activities.
- The project is expected to directly or indirectly stimulate investments in agricultural and rural development sectors of the state, thereby attracting more resources and fostering economic growth in the region.
- The proposed road rehabilitation will improve access to essential social services including schools, churches and hospitals, thereby contributing to the overall social well-being of the project affected communities.
- Upgraded transportation infrastructure will improve mobility, reduce travel time, and lower transportation costs for individuals and businesses. This benefit will have a cascading positive effect on local economic activities.
- It will promote social inclusion by connecting remote communities to the broader network. This will help reduce isolation and strengthen social ties among different communities.
- Improved road infrastructure will enable women to access markets, education, and healthcare more easily, contributing to their empowerment. Women and children who previously traversed narrow and rugged paths for water and other resources will benefit from safer and more accessible water points. Key areas include Obinto Atani Road and Amorji Ngbedeala Ntigha Umukalu Mbawsi.
- Short-term and long-term job opportunities will arise from the project. These include direct employment for local labour during construction and indirect opportunities through the provision of goods and services to technical teams, such as food kiosks, local security services, and equipment handling.
- Improved road conditions will enhance trade and commerce by reducing transportation costs and enabling faster delivery of goods. This will positively impact local businesses and promote economic diversification.
- With smoother and safer roads, vehicle operating costs, including fuel consumption and maintenance, will decrease. Additionally, the improved road infrastructure will contribute to fewer road accidents, thereby enhancing community safety.

4. Adverse Environmental and Social Impacts

The adverse E&S risks and impacts associated with the proposed project and their corresponding mitigation measures are provided in Table 26-28 below.

Table 26: Potential Negative Environmental and Social Impacts during Pre-Rehabilitation Phase

PRE-REHABILITATION PHASE

The Pre-Rehabilitation Activities are:

- Site clearance on either side of the centreline at designated roads (Spot Improvement and Upgrades) including the removal of structures in the ROW.
- Site marking and pegging,
- Mobilization of equipment and workers to site, and staging of campsite
- Removal of topsoil/unsuitable materials to sub-grade level
- Dewatering
 Exception
- Excavation of fill materials from approved Borrow Pits
- Material sourcing
- Siting and Construction of Staging Area

Compone nt	A d v e r s e Impacts	Description of Potential Environmental Risks & Impacts	Potential Conseque	Mitigation Measures
Environm ent	A i r Pollution	 The generation of fugitive dust is expected to be minimal but may occur during civil work activities, particularly in the following scenarios: i) site clearing along the selected roads, ii) construction and cleaning of workers' campsites, and iii) preparation of equipment staging areas, especially during the dry season. Additionally, contractors may set up new prefabricated campsites or lease and rehabilitate abandoned properties, both of which will work opening one divide the travelational to the particular during the dry season. 	Minor	 Watering of exposed soil surfaces and work areas, to suppress dust emissions. Distribute PPEs such as nose masks or respirators to workers/
		 will involve cleaning and maintenance activities that could contribute to localized dust generation Transportation of construction materials to project sites, particularly via roads in Isiala Ngwa LGA (e.g., Amorji – Ngbedeala – Ntigha – Umukalu – Mbawsi, and Amiyi Nvosi – 	Moderate	 Train drivers to reduce vehicle speed during the haulage of construction materials.
	 Ometeghi – Umuada Nvosi – Omuapu Road), which have recently been graded, as well as roads like Umuariama – Ahiaba Ubi – Nkwo Elechi in Obingwa LGA, currently under construction, may lead to moderate to high dust generation due to their unpaved and disturbed surface conditions. Carbon emission from exhaust fumes of vehicles carrying construction materials to work/ project areas may also occur. The offloading of materials such as sand, gravel, and cement at work areas can cause short-term dust generation. Though foreseeable, this impact will be localized to the immediate vicinity of the offloading activities. However, frequent offloading, prolonged exposure, and proximity to sensitive receptors such as kiosks, artisanal shops, farms, or 	Moderate	 Use vehicles, plants and equipment that are in good condition generally less than 5 users and 	
		 The offloading of materials such as sand, gravel, and cement at work areas can cause short-term dust generation. Though foreseeable, this impact will be localized to the immediate vicinity of the offloading activities. However, frequent offloading, prolonged exposure, and proximity to sensitive receptors such as kiosks, artisanal shops, farms, or 	Moderate	 Conduct offloading in designated areas away from sensitive receptors. Cover trucks conveying cement and sand with tarpaulins. Provide workers/PAPs with PPEs ad enforce its use. Also, work available conditioned
	Loss of Vegetation	 In some project locations, extensive vegetation overgrowth and encroaching palm bushes have obscured and made sections of the road impassable to vehicles. Site clearing activities in these areas may lead to the removal of beneficial flora and economic crops located within the ROW of the road, including the carriageway (addressed in the RAP). This clearing could also expose the area and increase the risk of surface erosion and rill formation. Notable locations include all roads in Upgrade Lot 4, Amaokwelu Alayi Junction – Amankalu – Akoli Imenyi (Spot Improvement, Lot 1), all roads in Spot Improvement Lot 2, and Umuafiaka – Umuokpara, Ahiaukwu – Amangwo – Umuajata – Umudere – Amakama (Spot Improvement, Lot 3). 	Major	 Limit clearing activities to the exact width necessary for road rehabilitation, avoiding unnecessary removal of vegetation outside the ROW. Implement erosion control methods e.g. silt fences, erosion control blankets around cleared areas. Where feasible, implement replacement is a control in the section of the
	Noise	 Increase in noise levels above the NESREA National Environmental (Noise Standard and Control) (55dB) is envisaged as work equipment are being conveyed to project sites and during the operation of project vehicles within and around the project areas. 	Major	 Where possible retrofit all hired vehicle exhausts with mufflers/ silencers to minimize noise.
	Surface Water Contaminat	 The suction and removal of water from potholes during the dewatering activity may potentially lead to the discharge of sediments and pollutants into nearby water bodies, impacting surface water quality. 	Moderate	 Install appropriate filters or geotextiles in dewatering systems to trap sediments and celluters before discharging
	Waste Generation	 Site clearing activities may lead to the generation of brush piles and vegetative debris (e.g., grass clippings, leaves, brush pruning, tree limbs and stumps). Additionally, the removal of top soil and unsuitable materials in preparation for the proposed road checkling may also concerns to hence of concerns a subject material. 	Minor	Implement WMP
	Exposure to Asbestos • The removal of topsoil and unsuitable materials may unearth asb already exposed and protruding out along roads such as Nbawsi Umuomaighiukwu (Upgrade; Lot 3). This may consequently lea materials being littered/stockpiled and abandoned along the road communities. If this occurs, local residents and workers may be e	 The removal of topsoil and unsuitable materials may unearth asbestos pipes which are already exposed and protruding out along roads such as Nbawsi – Agburuike – Umuomaighiukwu (Upgrade; Lot 3). This may consequently lead to heaps of asbestos materials being littered/stockpiled and abandoned along the roadside or in the communities. If this occurs, local residents and workers may be exposed to harmful abacted dust and finite which are accurate active backhoice instructions. 	Major	 Implement Asbestos Waste Management Plan (AWMP)
	Land Degradatio n	 Land degradation and increased susceptibility to erosion due to excavation of earth materials from borrow pits. 	Moderate	 Borrow pit design and siting should factor and carefully consider slope, size, and location to minimize the impact

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	PRE-REHABILITATION PHASE						
Social	Traffic Congestion	 Short-term traffic congestion is expected along approximately 5-10% of the access roads leading to the selected project areas. Congestion may also occur around major rural marketplaces where roads begin or end, particularly during the movement of materials, such as when trucks are navigating or reversing. This congestion will be temporary and is anticipated mainly during peak hours, when construction equipment and materials are being transported to staging areas and work sites. Traffic build-up is expected to be more pronounced on market days and during festive periods. Affected locations may include access roads to Okikpe – Umuana – Ikot Ekpene Road, Umuahia – Ohafia Road, Afara Ukwu – Eziama Road, Orie Ngodo Market, Nkwo Elechi Market, among others. The congestion may cause minor delays in travel time for road users (<i>For the Traffic Management Plan, see Annex 9</i>). 	Moderate	 Implement Traffic Management Plan (TMP) (See Annex 9) Implement temporary traffic control measures, such as cones, barriers, and flaggers, to guide traffic through the guide traffic through the 			
	Grievances	 Farm owners, particularly those growing cash crops like cassava, oil palm, and yam, as well as petty traders and roadside businesses, may express concerns or grievances when mobilization begins, or during site marking, pegging, and site clearing activities. Grievances may also arise due to physical and economic displacement resulting from site clearance along the road's centreline and the reclamation or removal of structures within the ROW. 	Minor	 Engage with affected farm owners, traders, and other stakeholders early in the project to inform them about the timeline and scope of activities, addressing concerns and grievances proactively. Implement GRM Provide fair and prompt companyation for any physical 			
	Possibility of Uncovering	 Possibility of uncovering chance finds during excavation of unsuitable material in the road sections to sub-grade level. 	Moderate	 Implement Chance Find Procedures as part of the PCRMP. 			
	Security	 Tendency of theft and vandalism of equipment during staging, particularly in communities with a history of insecurity or banditry, such as Obinulo – Umumaduako – Umumezie, or in areas showing signs of youth unrest. 	Moderate	 Engage local security personnel, such as community vigilantes, to ensure safety and support during the mobilization of workers and equipment to the external the external the set of 			
	R o a d Accident	 Transport of procured construction materials to work sites, may predispose commuters, pedestrians, etc. to road accidents. Possible accidents may be as a result of equipment/ material fall from trucks, side collision, etc. or in areas where children loiter and play around or exclude high excitation processing around a comparison of the processing. 	Major	 Train drivers to reduce vehicle speed while driving through built up areas at the project 			
	Livestock Road Kills	 Livestock roadkill may occur as vehicles and heavy-duty trucks move through some project community where open grazing of livestock is practiced e.g. Amorji – Ngbedeala – Nijeba – Umukalu, Manuai 	Moderate	Consider rescheduling transport Consider rescheduling transport			
	Occupation al Health & Safety Incidents	 Likelihood of accident occurring due to Unsafe Conditions (Improperly stacked, fastened and secured materials with potential to collapse or work environment) and Unsafe Behaviours (e.g. if the appropriate PPEs are not worn, horseplay, etc.). Offloading of materials (bricks, cement, paints, wood, iron rods, etc.) from trucks may present significant OHS risks and impacts during the pre-rehabilitation phase of this project. 	Moderate	 Conduct OHS training and education; HazCom, routine JHA/PHA; Implement site- specific OHSMP. 			

Table 27: Potential Negative Environmental and Social Impacts during Rehabilitation Phase

REHABILITATION PHASE

The Rehabilitation Activities are:

- Earth works
- Excavation
- Construction of drainage structure,
- Desilting of silted existing drainages
- Earth filing (with lateritic material) and alignment
- Road surfacing
- Construction of CDS/Culverts and demolition of failed hydraulic structures
- ٠ Re-sealing/overlay of cracks and eroded carriageway sections
- Potholes patching
- Pavement works (i.e. construction of sub-base and base courses, priming, and thin asphalting).
- Improvement/provision of culverts/ drains /slopes/ embankments/other structures. Complete or slight resurfacing •
- •
- ٠ Widening of shoulders of the existing road.
- Miscellaneous works (i.e. provision of road markings, signs and other infrastructure).
- Reclamation of Borrow Pits.

Componen t	Adverse Impacts	Description of Potential Environmental Risks & Impacts	Potential Consequen	Mitigation Measures
Environme nt	Soil Contaminatio	 Leaks from stacked equipment containing lubricants may seep into the soil, especially in unpaved areas, leading to soil contamination. 	Minor	Conduct regular maintenance to prevent leakages
	Degradation	 The use of priming and thin asphalting materials during roadworks may release harmful chemicals, adversely affecting soil quality. 	Moderate	 Coating should be such that it does not exceed the delineated road width (i.e. carriageway)
	Impacts on Natural Habitats Impact on Surface Water Quality	 Excavation activities may disrupt local habitats and wildlife (e.g. edaphic fauna and fossorial organisms such as squirrels, grasscutters, etc.). Furthermore, the installation of concrete drains may disturb local habitats, potentially impacting flora and fauna that rely on the natural drainage systems for survival. Considering that Cross Drainage Structures are proposed for most spot improvement roads, construction activities and CDS installation can disrupt the streambed and banks, leading to the loss of vegetation and critical habitats for fish, amphibians, and other aquatic organisms. Increased sediment-laden runoff (comprising of mortar and asphalt) from construction of road/hydraulic structures as well as desilting in existing silted drains can reduce water quality, smother fish spawning grounds, and clog the gills of aquatic species. This is also applicable during provision of stone pitching as embankment protection at designated culvert locations such as Uyim Stream (Okagwe – Nkwebi Onwuwanyanwu) – Upgrade; Igwu River (Amaokwelu Alayi Junction – Amankalu – Akoli Imenyi), Awiwa Stream (Bende Etitulo – Ubibia – Ndiwo – Itumbuzo – Okopedi – Ntalakwu), Iyi Obowo (Umuafiaka – Umuokpara Road), Iyi Nkpurute (Ahiaukwu – 	Moderate	 Implement erosion control measures around excavation sites to prevent sediment runoff into nearby streams, rivers, etc. Design drains to mimic natural drainage patterns and minimize disruption to local habitats. Use eco-friendly designs like fish-friendly culverts or openbottom structures to maintain natural flow and allow migration. Minimize sedimentation by using silt fences, sediment traps, or other erosion control measures. Ensure that the invert levels of
	Air Pollution	Carbon and Greenhouse Gas (GHG) emissions will be generated from operation of work vehicles and construction equipment.	Moderate	 Energy Efficiency Machines could be turned off when not in
		 Excavation activities may lead to fugitive dust generation Civil works will likely degrade air quality in the project area due to emissions from machinery (e.g., NOx, CO, SOx, hydrocarbons, and particulates) and dust from activities like road grading, asphalting, and material handling. These pollutants can exacerbate existing respiratory conditions e.g. asthma, in workers and PAPs, and also more especially in vulnerable groups. Socioeconomic studies show that older persons (aged 60 and above) make up the majority of the community demographic (44%), making them disproportionately affected by these impacts. 	Major	 Regular water spraying on roads and construction sites to suppress dust. Maintain and service machinery to minimize exhaust emissions. Use of low-emission equipment and vehicles (generally <3years old) Cover materials like cement and gravel using tarpaulin during transport and storage to prevent dust dispersion. Ensure regular air quality monitoring to ensure pollutant levels remain within acceptable limite.
		 Release of Volatile Organic Compounds (VOCs) substances from paints used for painting road furniture e.g. road signs and welding fumes 	Minor	 Provide workers and PAPs with appropriate PPEs such as respirators or masks, to reduce dust inhelation

	REHABILITATION PHASE		
Potential for Water Borne Diseases	 Project activities may impact water and sanitation conditions, potentially creating stagnant water pools that could increase the risk of waterborne diseases. 	Moderate	 Ensure proper design and construction of drainage systems to prevent stagnation of water and promote effective water flow grow from the project
Sedimentatio n - Clogging and Blockages of Drainages	 Improper or incomplete backfilling after installing drainage systems may leave piles of soil that, over time, can erode or be displaced by rain, wind, or human activities. This can lead to sedimentation within the drainage channels, obstructing water flow. 	Moderate	 Ensure proper backfilling of installed drainages and implement a maintenance schedule to keep drainage channels clear of debris, unacted in a drainage build
Poor Environment al Sanitation	 Rehabilitation activities may lead to an increase in open defecation by construction workers, resulting in poor environmental sanitation and potential health risks. 	Moderate	 Provision of gender specific mobile toilets (Porta-Potty) and enforcement of their use by construction underge
Waste Generation	 The construction phase will generate substantial amounts of waste on-site, including debris, topsoil, disused materials, and empty containers. This will result in an increase in both on-site and off-site construction waste quantities. Poor management of food waste can create unpleasant odours and attract flies and rodents, posing health risks to workers, nearby communities, and the general public. 	Moderate	 Implement WMP (See Annex 6) to segregate, recycle, and dispose of construction waste responsibly
Widening of existing Borrow pits and Creation of Borrow pits	 Excavating earth from existing borrow pits will expand their perimeter, potentially worsening erosion in areas already affected, particularly where previous borrow pits were not adequately reclaimed. The creation and use of new borrow pits may lead to land degradation and increased vulnerability to erosion. Additionally, borrow pits could become dumping sites for waste from project activities if not properly managed. 	Major	 As much as possible, refrain from gathering earth materials from borrow pits that are susceptible to erosion. If sourcing earth materials from erosion-prone pits is unavoidable, deploy erosion control measures around borrow pits to mitigate widening and
Noise	 Noise levels during activities such as excavation, haulage, asphalting, cement mixing, and the operation of machinery and equipment may exceed the NESREA National Environmental (Noise Standard and Control) limit of 55 dB. Prolonged or high-intensity noise exposure, depending on the location and duration, could result in adverse health effects. These include headaches, sleep disturbances, hearing impairments, and tinnitus, with older individuals and other vulnerable groups being particularly at risk. 	Major	 Use modern, well-maintained machinery with lower noise emissions. Consider equipment designed to meet low-noise operation standards. Early notification of community on road rehabilitation schedule. Additionally, restrict noisy activities to daytime hours (e.g., 9am – 5pm) to minimize sleep disturbance. Avoid simultaneous operation of multiple noisy machines in built up areas. Ensure all machinery is restrict and the standard and the standard standard
Vulnerability to Natural Hazards (road	 Where project roads pass through steep terrain with deep steep scarps on either or one side of the road, vibration of construction equipment can trigger road breakages/ slips in roads already in poor condition. E.g. Bende Etitiulo – Ubibia – Ndiwo – Itumbuzo – Okopedi – Ntalakwu, Umuafiaka – Umuokpara Road, Achara – Okpo – Nicese – Ukutu ete 	Moderate	 Reinforce vulnerable sections of the road with retaining walls, gabion baskets, or slope stabilization measures to proved seed backgroup coefficient
Impact on Regulatory Ecosystem Services	• Clearing/removal of palm trees majorly on the roads' ROW (due to encroachment) may thwart regulatory ecosystem services in the context of soil binding and erosion control; provided by the various species of palm trees randomly located along some roads. Specifically, where the roads have narrowed or caved in.	Moderate	 Implement selective clearing practices that target only palm trees encroaching on the roads' ROW, while preserving those that aparticula to sell stability

		REHABILITATION PHASE		
Social	Restricted access along roads being rehabilitated	 Road rehabilitation activities, including spot improvements and upgrading interventions, may result in restricted access to roads, impacting road users. This is particularly significant for elderly individuals within the project communities, who are more vulnerable to disruptions. Restricted access could limit their ability to reach essential services such as healthcare, social services, village square and leisure spots. Also, considering that most of the roads slated for rehabilitation serve as primary routes to local markets, the impact on women who predominantly engage in trading activities in these markets could be significant. This impact is likely to be more pronounced on major market days, which occur on a 4 or 8-day cycle, corresponding to the traditional market schedules (<i>Eke, Orie, Afor, and Nkwo</i>). 	Moderate	 Early notification of PAPs and road users. Adopt a phased approach to the road rehabilitation e.g. sectionalize works into manageable portions to allows for a segment of the roads to be undertaken at a time so as to ensure uninterrupted access for PAPs. Create detours/diversions or use road signs to redirect traffic to existing alternative access routes which have been identified for the product of the product of
	Physical and economic displacement	 Civil works, such as widening the road shoulders, may require reclaiming the ROW. This could involve the removal or relocation of market shops, electric poles, and encroaching sections of farms, thereby potentially impacting livelihoods. As a result, compensation for affected individuals and vulnerable groups may be necessary, which will be addressed in the RAP. 	Major	 Early notification of PAPs Implement RAP and compensation to affected individuals or communities Implement livelihood restoration processors for identified
	Impact to Physical Cultural Resources (PCR)	 Expansion of the shoulders of existing road and installation of drainages could result in potential impacts to memorial tomb stones, sacred trees, and shrines during road rehabilitation along some Upgrade Roads (such as Lot 1 – Achara – Okpo – Nkporo – Ututu, Sameke Junction – Amaraughoghu, Lot 4 – Ogbodioriloku – Umuchiche – Mbaraukwu, Agalabano – Umuhu Central School – Ekeoba); and Spot Improvement Roads (such as Lot 1 - Ozara Market Junction – Amaoku Alayi – Ugwueke Road; Lot 2 - Alayi – Ezeukwu Road, Ezeukwu – Ugwueke Road; Lot 3 - Ahiaukwu – Amangwo – Umuajata –Umudere – Amakama). 	Major	 Implement PCRMP Explore the option of adjusting the road alignment to the left or right, as needed, to completely avoid interference with PCR. Establish clear exclusion zones around sacred areas and communicate them to the Contractor workers.
	Potential Impact on Power Infrastructure	 The relocation of power distribution poles may be required during road shoulder expansions or drain construction along specific routes, such as Sameke Junction – Amaraughoghu (Upgrade; Lot 2), Agalabano – Umuhu Central School – Ekeoba (Upgrade; Lot 4), and Ahiaukwu – Amangwo – Umuajata – Umudere (Spot Improvement; Lot 3). This process could result in damages to infrastructure or temporary power outages, potentially leading to grievances from relevant government agencies (MDAs), electricity companies responsible for managing/monitoring the affected infrastructure, and operators of local businesses that rely on a stable power supply. 	Moderate	 Early follow-up engagement with Enugu Electricity Distribution Company (EEDC) to identify power infrastructure that may be affected and to coordinate relocation plans. Notify local businesses and residents in advance about potential disruptions to power supply Implement the relocation of power poles in phases, minimizing downtime and ensuring power is restored as quickly as possible. Schedule relocations during off-peak

REHABILITATION PHASE					
Grievances and Disruption of Community Activities	 Project activities may lead to physical and economic displacement, causing dissatisfaction among PAPs. PAPs relying on streams for water may raise grievances due to contamination from sediment-laden runoff during construction activities such as stone pitching, thin asphalting, and prime coating. 	Major	 Implement RAP and livelihood restoration to address displacement issues, including fair and prompt compensation for lost assets, livelihoods, and economic activities. Install silt fences, sediment traps, and other runoff control measures to prevent contamination of streams. 		
	 Negligence by contractors in hiring workers from host communities may result in dissatisfaction and tension. 		 Schedule construction activities during dry seasons to reduce the risk of runoff into water bodies. Require contractors to prioritize hiring from the host community 		
	 Grievances may arise if contractors or external workers trespass or loiter near community shrines or sacred sites (e.g., Igboro Uduma Shrine, Ala Nna Sacred Tree, Umuokpu, and Arusi Ajala Shrine). 		 for unskilled and semi-skilled labour positions. Conduct mandatory cultural sensitivity training for contractors and workers to respect local customs and 		
	 Construction activities, including drain installation and road surfacing, may temporarily block access to farmlands, entrance into public places e.g. schools, hospitals, churches, markets, or businesses, causing disruption to local livelihoods. 		 sacred sites. Work with community leaders to identify and protect sacred sites and develop protocols for rehabilitation activities around sensitive areas. Create/construct diversions or temporary access paths to maintain connectivity to farmlands, markets, and businesses during construction. 		
Antisocial Behaviours/ Social Vices of Labour Influx	 Labour influx may lead to: Increased pressure on community resources, such as water supply points and financial services (e.g., Point of Sale [POS] providers). A rise in sexually transmitted infections (STIs) and diseases (STDs) may occur due to consensual and transactional sexual relationships between workers, community members, and others attracted to the project area. The presence of workers may lead to an increase in theft, physical assaults, substance abuse, and prostitution, disrupting social order. 	Moderate	 Workers camp to include utilities (water, separate POS service providers, waste disposal point, leisure/sports facilities, etc.) and prohibition of use from community sources Implement a strict code of conduct for all workers, outlining unacceptable behaviors such as theft, physical assaults, substance abuse, and disrespect for local customs. Provide regular sensitization and training for workers on respecting community values. 		
	 Migrant workers and other individuals seeking opportunities may move to the project area, straining the community's ability to meet increased demands for goods and services. 		 gender sensitivity, and conflict resolution. Organize health awareness campaigns for both workers and community members, focusing 		
	 Tensions may arise between workers and the local community, particularly displaced individuals (e.g., youth or owners of affected structures or farms). Conflicts may also stem from religious, cultural, or ethnic differences, as well as misunderstandings during construction activities 		on the prevention of STIs/STDs • Limit the number of migrant workers and implement a registration and monitoring system to manage their activities and movement.		

DRAFT REPORT

Environmental and Social Management Plan (ESMP) for Roads Rehabilitation (Spot Improvement [12 Roads - 40.36km] and Upgrades [25 Roads - 92.78km]) in Twelve (12) Local Government Areas under Phase 2 Intervention Under the Abia State Rural Access and Agricultural Marketing Project (AB-RAAMP).

	REHABILITATION PHASE					
Risk of Sexual Exploitation and Abuse	The Risk of Sexual Exploitation, Abuse, and Harassment (SEA/SH) is particularly high in the rural areas affected by the proposed road rehabilitation, where power imbalances between construction workers and local community members, particularly women and teenage/adolescent females, can lead to exploitation. In these communities, a lack of awareness about rights and available support, combined with weak or non-existent reporting systems, may prevent survivors from coming forward. For example, in isolated project areas where workers may stay in temporary camps or accommodation near local villages, the social and economic dependence of local women or adolescents on workers for access to goods, services, or employment could increase the risk of SEA/SH. Additionally, fear of retaliation or community stigma may discourage survivors from reporting incidents, further perpetuating the cycle of abuse.	Major	 Implement stringent screening processes for all workers to identify and exclude individuals with a history of SEA/SH offenses. Ensure all contracted workers sign the Code of Conduct (CoC), and establish strict penalties, including immediate termination, for workers found guilty of SEA/SH offenses. Conduct regular SEA/SH awareness and sensitization workshops for all project workers and community members, emphasizing zero tolerance for such behaviors. The SPIU must ensure that Supervisory Consultants and Contractors engage a qualified GBV focal person/officer as part of their safeguards team. This requirement should be explicitly included in their contracts. Alternatively, the SPIU should partner with NGOs in the state, specializing in GBV to provide independent third-party monitoring of SEA/SH risks. Establish a community-based CDM with execution service and service			
Violence Against Children (VAC) Attributed to	 Children may be exposed to various forms of harassment or violence by workers especially if they are asked by such workers to help carry out a duty such as i) buy food items ii) assist them move materials/equipment, etc. during the rehabilitation phase. Child labour and possible dropping out of school may occur as a result of the project, when families consider engaging their under aged children to hawk or sale at work work or sale at work or sale at work work work or sale at work work or sale a	Moderate	 VAC sensitization Campaign against child labour Ensure that children and minors are not directly or indirectly on the project 			
Security	 Contractors and workers may be at risk of robbery, extortion, kidnapping, and equipment theft by local gangs or criminals, particularly in areas such as Isiala Ngwa North and South LGAs and Umu Nneochi LGA, which have previously experienced insecurity. While such risks are anticipated, security conditions have significantly improved in these areas, and normalcy has largely been restored. 	Moderate	 Liaise with and build positive relationships with vigilantes and community watch groups to enhance local security support and ownership of project. Collaborate with local law enforcement agencies to enhorcement agencies to 			
Community Health and Safety	 Unreclaimed and abandoned borrow pits may pose safety hazards to children and other members of the local community. If not properly designed and secured, concrete and earthen drains could present safety risks to people living near or along roads undergoing construction. Pedestrians crossing access roads and freely grazing animals may be at risk of accidents or roadkill. 	Major	 Barricade in-use borrow pits prior to reclamation. Implement Borrow Pit Management Plan (BPMP). Install drains in sections/batches to avoid multiple open pits, and barricade unfinished work at the end of each day. Install speed bumps and road furniture on rehabilitated roads. Implement Community Affairs, Cafate Leath Fouriersest 9 			

	REHABILITATION PHASE							
Occupatio nal Health and Safety	OHS Impacts	 In the course of the rehabilitation works, there would be a moderate to severe likelihood of the occurrence of workplace hazards. Most activities could predispose personnel to hazards. "Unsafe behaviours" and "Unsafe conditions" will pose a serious occupational health and safety risk. Hazardous conditions or practices likely to impact on occupational health and safety will include: Local workers may be injured by construction machinery such as excavators, bulldozers, cranes, and trucks due to mishandling, lack of training, or mechanical failure. Materials like steel, concrete, or tools can fall and cause serious injuries to workers e.g. during construction of CDSs Uneven ground, wet conditions, or cluttered work areas may cause workers to slip, trip, or fall, leading to injuries. Traffic collisions involving construction vehicles or equipment on site can cause serious injuries or fatalities. Prolonged exposure to dust from excavation and earthworks and to high levels of noise from heavy machinery, can cause respiratory problems and hearing loss. Pre-existing conditions such as asthma, may also be triggered. Handling materials like asphalt, bitumen, cement, or chemicals used in construction processes can expose workers to toxic substances, leading to skin irritation, respiratory issues, or long-term health conditions. Working in hot weather conditions without proper hydration or rest can lead to heat stress, heat exhaustion, or dehydration 	Major	 Ensure drivers adhere to regulated rest periods and limit working hours to prevent fatigue-related accidents. Implement on-site OHSMP; Provide workers with appropriate PPEs such as dust masks, respirators, ear plugs, and noise-cancelling headphones; Ensure good construction housekeeping Implement JHA/PHA; Safe Work Practices; Use of PPE; Provision for adequate caution signages Provide break/rest periods for all workers. Adequate training on proper lifting and manual handling 				

Table 28: Potential Negative Environmental and Social Impacts during Operation Phase

	OPERATION PHASE						
Activities in Dise	Activities in the Operation Phase Include: Disengagement of the Contractors and demobilization from sites. Use of rehabilitated structures. 						
Componen t	Adverse Impacts	Description of Potential Environmental Risks & Impacts	Potential Consequen	Mitigation Measures			
Environme nt	Weed Overgrowth and Silt	 Rehabilitated roads may be predisposed to potholes, weed overgrowth and silt accumulation by the shoulders due to no/poor maintenance. 	Moderate	 Institute a community-based road maintenance group to carryout maintenance activity at activity 			
	Soil Erosion and Water Runoff	 Without proper maintenance and regular desilting of drainage systems, the road could exacerbate soil erosion, particularly in areas with steep gradients. This can lead to the washing away of the road itself or surrounding land, affecting agricultural activities and local ecosystems. Poor drainage management and household waste accumulation could also lead to increased surface runoff, potentially flooding nearby areas and causing sedimentation in water bodies. The oddee of CDS structures and bridges may crede and user off due to appear of the oddee off. 	Moderate	 Regularly clean and maintain drainage systems to prevent clogging and reduce the risk of surface runoff and flooding. Sensitize the community on the risk of dumping refuse in the drainage channels. 			
	Wildlife- Vehicle Collisions and	 Improved roads may increase the risk of wildlife-vehicle collisions, especially in areas where animals frequently cross roads. 	Minor	 Install speed bumps across the road to reduce vehicle speed. 			
Social	Loss of Employment	 Workers and personnel engaged in civil works will be relieved of their duties at the commencement of the operational phase. 	Minor	 Early notification of workers prior to their disengagement 			
	Noise	 Prolonged exposure to road noise can also affect the quality of life for people living close to the road, contributing to stress or sleep disturbances. 	Moderate	 Install speed bumps in built up areas and enforce speed limits on rehabilitated roads to minimize vehicle noise 			
	Accidents	 Risk of accidents is foreseeable, especially in built up areas with high pedestrian activity e.g. schools, churches, etc. Vulnerable road users (such as Non-Motorized Transport users e.g. pedestrians, children, and bicyclists) may be at higher risk if road 	Major	 Install road furniture (safety signages, speed limits, etc.) and speed bumps Device mainteeness of roads 			

5.4.2 Climate Change Impacts and Mitigation Measures

The most significant envisaged climate change hazards/events and their potential impacts on the rural roads are provided below including their mitigation measures.

Climate Change	Potential Impact on the Roads	Climate Change Adaptation Measures	Climate Change Mitigation Measures
Flooding	 Damage to, or inaccessibility of low-lying areas due to water accumulation, particularly in areas without adequate drainage or hydraulic structures. Submersion of roads, particularly those close to streams or in floodplains, leading to stream diversion and temporary inaccessibility of the road. This could also lead to road washouts. Waterlogging in poorly graded areas, increasing maintenance requirements. 	 Design roads with raised embankments in flood-prone areas. Construct high-capacity culverts, bridges, and side drains for effective water management. 	
Erosion	 Formation of gullies, undermining the structural integrity of road embankments and pavements and preventing accessibility. Loss of topsoil and vegetation, leading to further slope instability. Sedimentation in nearby water bodies, offician equation constructions and water 		
Strong Windstorm	 Damage to auxiliary infrastructure such as safety signages, traffic signals, etc. Increased risk of tree falls along roads with vegetation encroachment, obstructing roadways and causing potential safety 		
Rising Intensity of Precipitatio n and Extreme Rainfall Events	 Overflow of drainage systems and culverts, leading to road flooding and erosion. Slope destabilization/failures, particularly on hilly terrains. Rills and gully formations along poorly drained roads. Increased soil moisture levels, reduced soil cohesion, and heightened seepage and infiltration through the road structure (thin) asphalt) can weaken the road body and compromise its stability. This could result in an accelerated wear and tear of asphalted surfaces, reducing road life and increasing repair costs. Erosion and scouring or washout of edges of CDS or other works for river crossings. 		
Higher Maximum Temperatur e and Frequency of Consecutiv	 Softening, cracking, and rutting of asphalt, compromising pavement integrity. Bleeding of asphalt surfaces, leading to slippery conditions and safety concerns. Expansion of unsealed road cracks, making them more vulnerable to further degradation during subsequent rainy periods. 		

CHAPTER SIX – GRIEVANCE REDRESS

MECHANISM

6.1 Introduction

This chapter has been prepared with reference to the Beneficiary Feedback (BF) and Grievance Redress Mechanism (GRM) prepared to serve as a blueprint for the RAAMP participating states, including Abia State. The project's BF and GRM shall be incorporated into existing arrangements and operationalized at each State and will have two objectives; i) to serve as beneficiary feedback platform on the overall performance of the project in the participating states, and ii) to serve as a dispute resolution mechanism on pertinent E&S issues. Additionally, the GRM will serve as a tool for receiving allegations of sexual exploitation and abuse/sexual harassment (SEA/SH) caused by the project in a survivor centric approach. Detailed information on the SEA/SH Grievance Mechanism are also provided in the report.

Consequently, the GRM for the proposed intervention works will adopt the provisions in the existing BF and GRM and will be applied at 3 levels namely; **Community Level, SPIU Level, State Citizens Mediation Centre (SCMC) and FPMU Level.** The structure and composition of these levels have been further discussed in subsequent sections. The GRM will assist the PIU to ensure that deliberate processes and procedures are put in place to capture, assess and respond to concerns from project beneficiaries, project executors and the general public during the implementation of the project. This will ensure smooth implementation of the intervention works, timely and effectiveness in addressing problems that may be encountered during implementation. Adherently, the grievance procedures as contained in the BF and GRM, will be made available to affected persons throughout the implementation period of the work packages/intervention works.

6.2 Potential Grievances Related to the Proposed Phase 2 Intervention Works Under AB-RAAMP

Broadly, under RAAMP, and particularly in relation to the proposed phase 2 interventions (spot improvement and upgrade work packages) and their associated civil work activities, potential areas of grievance may arise from the following:

- Delay in execution of project leading to breakdown of trust
- Failure to generate opportunities for employment of locals in the communities
- Disruption to amenities, utilities, farms and socio-economic activities.
- Violation of human rights
- Blockage of access routes and consequent traffic congestion on adjoining roads
- Noise/disturbance
- Fugitive dust from movement of vehicles along earth roads
- Accidents or injuries
- Impact to PCR and trespass into sacred areas
- Contamination of surface water resources (streams, rivers) due to sediment run-off
- Sexual Exploitation and Abuse/Sexual Harassment of locals as a result of labour influx
- Land related matters, including trespass during road expansions
- Exclusion claims
- Flooding of road, adjacent houses and community(s) as a result of poor channelization or inadequate road infrastructures (culverts, drainages).
- Physical and/or economic displacements caused by land acquisition or any other project activities
- Under Estimation of Compensation
- Non-installation of ramps or slabs at entry point into public places such as schools, churches, hospitals, etc. to aid vehicle entrance.

- Poor management of asbestos pipes uncovered from work areas.
- Delay in Compensation
- Property Disputes Among PAPs
- Delays in payment of workers' salaries or non-issuance of formal letters of engagement.
- Discrimination of Vulnerable Persons
- Sexual exploitation and abuse/sexual harassment of locals as a result of labour influx.

6.3 Objectives of the GRM

The specific objectives of this GRM are as follows;

- a. Establish a prompt, easy to understand, culturally appropriate, consistent, acceptable and respectful mechanism to support the receiving, investigating and responding to complaints or grievances from community stakeholders.
- b. Ensure proper documentation of complaints or grievances and any corrective actions taken; and
- c. Contribute to continuous improvement in performance of the project through the analysis of trends and lessons learned.
- d. Resolve grievances when they occur, and mitigate their consequences, as well as preventing them from escalating;
- e. Achieve resolution of grievances and conflicts related to AB-RAAMP activities in a transparent, timely and efficient manner;
- f. Achieve improvement and restore relationships among people and communities via redressal of pending disputes related to the AB-RAAMP activities;
- g. Provide communication channels for aggrieved persons to express their displeasure and be heard;
- Improve stakeholder participation and decision making through dialogues and registration of grievances and conflicts;
- i. Win the trust and confidence of project beneficiaries and stakeholders to create productive relationships between parties; and
- j. Allow communities to express views on negative impacts from the intervention activities, Contractor's conduct, work quality, malpractice, and so on.

6.4 Grievance Uptake Channels

The following channels will be available for grievance uptake:

- In-person to the grievance redress committee (GRC) focal persons
- During meetings organized by the community GRC (with participation of the aggrieved person and stakeholders)
- Use of complaint box (there should be a complaint box for general grievances and for GBV-specific issues)
- Letter addressed to the GRC at the Community and SPIU levels
- Telephone hotlines
- Toll-Free lines
- SMS (regular or short code SMS)
- Dedicated Mobile Applications
- Any other suitable channels to be recommended in future based on further citizens engagement activities.
6.5 Key Steps and Processes for Handling Complaints through the GRM

To ensure efficient grievance resolution, the following steps will be implemented by the AB-RAAMP SPIU in line with the overall RAAMP Beneficiary Feedback and GRM framework:

- Receipt and Registration of Grievance: Grievances will be received through designated channels such as grievance boxes, toll-free lines, email, or in-person reporting. Upon receipt, each grievance will be formally registered in a logbook or database for proper tracking and follow-up.
- Feedback to Complainant: Acknowledgment of the grievance will be provided to the complainant promptly (ideally within 48 hours). This feedback will confirm receipt of the grievance and outline the next steps in the resolution process.
- Verification, Screening, and Sorting of Grievances: The following shall be undertaken following grievance receival and acknowledgement:
 - ✓ Verification and Screening: A thorough review of the grievance will determine whether the issue is linked to Abia RAAMP and assess its complexity. If the grievance falls outside the project's jurisdiction, it will be referred to the appropriate authority, and the complainant will be informed.
 - ✓ SEA/SH Cases: In the event of a Sexual Exploitation, Abuse, or Harassment (SEA/SH) complaint, the grievance will not be investigated by the GRM but referred immediately to the Abia RAAMP SPIU for onward transmission to relevant authorities or service providers with confidentiality and survivor-centric principles.
 - ✓ Criminal Cases: Grievances involving criminal matters, such as armed robbery, grievous bodily harm, or homicide, will be referred directly to the police after an initial assessment to confirm the nature of the issue.
 - ✓ Sorting: Grievances will be categorized based on their type (e.g., compensation, resettlement, OHS/ CHS and labour issues, environmental concerns, or SEA/SH complaints). This categorization will ensure that the grievance is addressed appropriately and by the relevant team or authority.
- Investigation and Consideration of Grievances: A comprehensive investigation will be conducted to identify the root cause and propose actionable solutions. The investigation team will include relevant specialists, such as environmental or social safeguards officers, project and supervising engineers, and community representatives, depending on the nature of the grievance. The complainant may be consulted for additional details or clarification during this process.
- **Resolution, Implementation, and Case Closure:** Once a resolution is reached, the agreed-upon corrective actions will be implemented promptly. The complainant will be informed of the outcome and provided an opportunity to confirm satisfaction with the resolution. If the complainant is dissatisfied, the case may be escalated to higher redressal levels for further resolution.

Finally, the grievance will be marked as closed in the logbook or database, and the resolution process documented for transparency and accountability. Lessons learned from resolved grievances will be used to improve future project implementation and grievance handling.



6.6 Structure of Grievance Redress for RAAMP

A three-level redress system in the form of Grievance Redress Committee (GRC) is planned to address all complaints during the implementation of AB-RAAMP intervention works. These include:

- Community level -
- SPIU level
- State Citizens Mediation Centre (SCMC)
- FPMU Level

6.7 First Level of Redress: Community - Based GRC

Considering that the traditional leaders are often engaged with diverse matters affecting their communities, and as such may not be readily available to participate directly in the day to day running of the RAAMP GRM, a traditional ruler/leader shall be required to nominate a chief or palace elder to act in their place in the community based GRC. Members of each proximate community shall be mobilized to nominate not more than ten persons into a community-based GRC, comprising of representatives of:

- The traditional leader
- Opinion leaders or community influencers
- Women
- Youth
- A Community Grievance Focal Person
- Any minority group(s) within the community e.g., non-indigenous settlers

Summary of functions: There shall be a GRC in each proximate cluster of project beneficiary communities along each proposed road for rehabilitation or Lot – depending on the distance between communities. The nomination of members of the GRC shall involve a participatory process to take place during a well-publicized town hall or community meeting, led by the traditional leadership and supported by the SPIU. Local interest groups like NGOs/ CSOs, respected citizens in the communities and reputable community associations shall also participate in the selection of the GRC members. During the sensitization of the communities on the GRM, a Community Grievance Focal Person, would be selected based on a set of standard criteria.

Roles of the Community Grievance Focal Persons

- Be the main support for the ABS-RAAMP GRM at community level.
- Receive training from SPIU on roles and responsibilities.
- Be responsible for the Complaint Box and ensure that Complaint Forms are always available.
- Enter information into the incident intake form

- Promptly call the complaint in to the SPIU Grievance Focal Person directly in the case of SEA/SH cases as soon as the incident is known.
- Refer SEA/SH survivors to support services available in the community, based on his/her consent, as per the GBV referral pathway detailed below and follow up with GBV cases, all while maintaining confidentiality to protect the survivor and remaining in close contact with the SPIU.
- Enter the information into the incident intake form while maintaining the reporting protocol.
- Refer the allegation to needed assistance including GBV Service Providers and to SPIU GBV Consultant.
- Sensitize communities on SEA/SH and GBV services available/referral pathway.
- Ensure proper feedback is provided to complainants.

6.8 Second Level of Redress: SPIU Level – ABS-RAAMP SPIU GRC

The GRC established within the Abia RAAMP SPIU, will receive and redress issues or matters presented to it from the Community-Based GRC. This GRC shall be chaired by the Social Safeguards Specialist, and comprising of:

- State Project Coordinator (Advisory)
- SPIU Social Safeguard Officer
- SPIU Technical Assistant on Social Safeguards
- SPIU Environmental Safeguards Officer
- SPIU Technical Assistant on Environmental Safeguard
- SPIU Technical Assistant on Gender Based Violence (GBV)
- SPIU Communication Specialist
- A representative of the State-level ADR Agency (e.g. Citizens' Rights/Mediation Centre)

Representatives of the project contractors shall also be invited when the need arises. Furthermore, the SPIU GRC shall be responsible for:

- Coordinating the entire grievance mechanism at the state level.
- Resolving disputes that are within their power or control.
- Making recommendations for action to the GRC at the FPMU in the case of issues of extreme importance or urgency.
- Offering the interested parties, the option of referral to the Citizens' Rights/Mediation Centre under the
 respective state Ministry of Justice. This feedback to the complainant shall be done through the relevant
 community-based GRC in the case of grievances that are either unresolvable at the FPMU level or found at
 the SPIU level to be extraneous to the execution of the RAAMP
- Provide adequate resources to offset operational administrative costs of the community based GRCs.

6.9 Third Level of Redress: RAAMP FPMU GRC

The main roles of the FPMU GRC is to; i) oversee the operations of the GRMs in the various participating states ii) allow affected parties, who are unhappy with how their complaint has been handled by the first, second and third tiers GRCs to apply for a reconsideration of their cases and, iii) E&S feedback or issues that has not been handled by and filed directly to the SSO, Community based GRCs, GRCs, SPIU and, SCMC.

The FPMU GRM shall consist of the following members:

- National Project Coordinator, RAAMP
- FPMU Social Safeguard Officer (GRM Coordinator)
- FPMU Technical Assistant on Social Safeguard
- FPMU Technical Assistant on Environmental Safeguard
- FPMU Technical Assistant on GBV

This committee shall receive monthly reports on status of disputes/complaints from the ABS-RAAMP SPIU GRC and shall provide approvals or guidance on action items in the report. If disputes cannot be resolved by the FPMU GRC, the affected or interested party may choose to pursue the case in a court. However, a detailed report should be sent to the World Bank Task Team Leader including all steps taken to resolve the issue.

6.10 Awareness of GRM

GRM should be given a wide publicity among stakeholder groups such as affected parties, government agencies, and civil society organizations. Effective awareness of GRM process makes people better understand about their options, depending on the types of complaints. However, measures should also be taken to encourage stakeholders not to submit false claims. Criteria for eligibility need to be communicated and also awareness campaigns should be launched to give publicity to the roles and functions of the GRM.

Awareness should include the following components:

- Scope of the work packages, selected roads, potential positive and negative impacts etc.;
- Types of GRCs available, members of the community GRC purposes for which the different GRMs can be accessed.
- Members of each community shall nominate not more than ten persons into a community-based GRC in line with the GRC structure. The SPIU shall not select or impose any members for them.
- Types of grievances not acceptable to the GRC.
- How complaints can be reported to those GRC and to whom, e.g., phone, postal and email addresses, as well as information that should be included in a complaint;
- Procedures and timeframes for initiating and concluding the grievance redress process; boundaries and limits of GRM in handling grievances; and roles of different agencies such as project implementer (ABS-RAAMP and funding agencies).
- A variety of methods can be adopted for communicating information to the relevant stakeholders. These methods could include display of posters in public places such as in government offices, project offices, community centres/village squares, schools, churches, hospitals and health clinics of the area.

6.11 Addressing SEA/SH/GBV in the GRM

Based on the high GBV risk profile of RAAMP, RAAMP will adopt model 2 of the GRM document which links project grievance mechanism to an identified intermediary service provider to handle SEA/SH allegation. The intermediary service provider will be open to the use of all members of the communities as well as stakeholders. SEA/SH allegation can be reported through project-level GRM Channels or directly to the intermediary service provider. This sub-project GRM will adopt the survivor centered approach specifically for handling SEA/SH cases as captured in the RAAMP BF and GRM. In addition, to the survivor centered approach the GBV-GRM shall address right to safety, respect, and confidentiality, of the complaint intake and management. There is need to ensure that GRM procedures and mechanisms for reporting allegations of SEA/SH are known to all GRM Focal Persons.

Specific Principles Applicable to GRMs for Sexual Exploitation and Abuse

Confidentiality and Anonymity

The GRM should:

- Have multiple channels through which complaints can be registered.
- Grievance Uptake Channels (GUCs) must be designed to allow complainants submit grievances in a confidential and anonymous way
- Unauthorized persons MUST not have access to complaints
- Personal details of complaints must not be disclosed if complainants wish to remain anonymous
- Allow safe and confidential reporting: survivors should be able to report SEA/SH without being identified publicly.
- Protect information about SEA/SH allegation, and in particular the identity of the survivor and those involved, at all times.
- Log SEA/SH cases separately from other cases and should not include identifiable information in a logbook. A separate coding system for names should be created and stored in a locked cabinet. The complaint logbook should also be stored in a different locked cabinet.

Survivor-Centricity and Safety

The GRM should:

- Support the creation of a supportive, dignified and protective environment for the SEA/SH survivor, and full
 respect of his/her rights, wishes and choices.
- Be based on the survivor's informed consent, which needs to be guaranteed throughout the GM. Maintain confidentiality and anonymity as a fundamental way to guarantee survivors' safety: survivor files should not be discussed with anyone.
- Provide feedback on the case to the survivor only and exercise strong caution before communicating any results beyond the survivor.

6.12 GRM Jurisdiction

This is a project specific GRM and applicable to solve the concerns of the stakeholders of the Project. This is however not intended to bypass Governments own redress process; rather intended to address affected people's concerns and complaints promptly, making it readily accessible to all segments of the affected people and is scaled to the risks and impacts of the Project. The Government Redress mechanism takes priority over this one.

The Figure 27 below shows the flow chart for the Grievance Redress Mechanism (GRM)



Figure 27: Flowchart RAAMP GRM

CHAPTER SEVEN – ENVIRONMENTAL AND

SOCIAL MANAGEMENT PLAN

7.1 Introduction

A matrix table format is used to describe the Environmental and Social Management Plan (ESMP) which outlines the mitigation and monitoring strategies for addressing adverse environmental, social, and occupational health and safety risks associated with the proposed phase 2 interventions under Abia RAAMP, including Spot Improvement and Upgrade work packages. This table comprehensively integrates mitigation measures for all identified potential adverse E&S impacts of the civil works. Additionally, it includes monitoring indicators, institutional responsibilities and monitoring frequencies for the pre-rehabilitation, rehabilitation, and operation phases of the project. Tables 29 and 30 below display the Environmental and Social Mitigation and Monitoring Plan for each intervention package, categorized by project phases.

IMPORTANT NOTE: Two (2) ESMP matrix tables have been developed to address all adverse E&S risks and impacts associated with the phase 2 interventions under the respective work packages - Spot Improvement and Upgrades. While several impacts and mitigation measures apply to all the interventions, specific E&S impacts are unique to some roads and/or intervention(s) due to the peculiarities of their proposed interventions and project environments. For this reason, a comprehensive ESMP table per work package, including mitigation and monitoring costs for all identified adverse E&S impacts at the project locations, has been prepared. Additionally, a summarized version of the total cost per intervention as it applies to the respective Lots (where applicable) is provided in Table 40. The Abia RAAMP Safeguards Unit shall ensure that all the mitigation measures specified in the ESMP including their associated costs, are included in the bid documents for the Contractors to implement. Campaigns on HIV/AIDS, environmental protection and waste management shall also be undertaken. For this purpose, services of experienced NGOs and specialists in the fields would be sought for or procured. Kindly be reminded that Chapter 3 of this ESMP report provides detailed information on labour requirements, as well as procedures for selecting locations for setting up campsites and staging areas. Several Management Plans have been prepared as guides to facilitate a seamless implementation of the ESMP and are included in the annexures.

Note: All conversions were done using the Central Bank of Nigeria (CBN) current exchange rate of 1USD = 1,408 NGN as at April, 2024.

Table 32: ESMP Mitigation and Monitoring Matrix Table for Roads Selected for Upgrades (Pre-Rehabilitation Phase).

ę	S/N	Activity	Potential E&S Risks & Impacts	Mitigation Measures	Responsi bility for Mitigation	Cost of Mitigatio n Naira/	Parameter s to be Measured	Method of Measureme nt	Performan ce Indicator	Sampling Location	Freque ncy of Monito	Responsib ility of Monitoring	Cost of Monitori ng
1	۹.	ENVIRONME	NTAL IMPACTS										
	1.	Mobilizatio n of equipment and workers to site.	Dust generation is anticipated —along recently graded Lot 3 roads (i.e. Amorji – Ngbedeala – Ntigha – Umukalu – Mbawsi, and Amiyi Nvosi – Ometeghi – Umuada Nvosi – Omutapu	Regularly water the graded roads, especially during dry weather, to suppress dust. Train drivers to reduce vehicle speed and enforce a strict speed limit of ≤30 km/h for all construction vehicles along	Contractor s	@ N35,305 per Lot x 2 Lots = N70,610 (46)	Dust generation (PM2.5 and PM10).	In-situ Air Quality Measureme nt; Visual observation	Reduction in airborne dust concentrati ons	Stretch of Lot 3 roads (Amorji – Ngbedeala – Ntigha – Umukalu – Mbawsi, and Amiyi Nvosi – Ometeghi – Umuada Nvosi – Omuapu Road), and the Lot 5 road (Umuariam a – Ahiaba	Twice Weekly (during equipm ent supply to site and mobiliz ation activity)	SPIU; Safeguards Unit; ESO; Supervisor y Consultant.	84,425 (55)
			Road), and the Lot 5 road (i.e. Umuariama – Ahiaba Ubi – Nkwo Elechi in Obingwa LGA)— as construction vehicles transport materials to the site.	these roads to minimize dust dispersion. Install GPS monitoring systems or speed tracking devices on trucks to ensure compliance. Cover construction			Vehicle speed. Dust emissions from uncovered loads.	Use of GPS/ speed monitoring devices e.g. In-Vehicle Monitoring Systems - IVMS Tracker Visual inspections; In-situ Air Quality	Adherence to prescribed speed limits in project communitie s. Complianc e with covering	Ubi – Nkwo Elechi in Obingwa LGA) Equipment staging areas and offload sites.	One-off		
		Site Clearing; Erection of Staging Areas and Campsites	Transport/ offloading of sourced materials (e.g. sand, gravel, cement etc.) at work areas may also lead to short-term localized dust generation.	trucks carrying dry materials such as sand, gravel, and cement with tarpaulins to prevent materials from spilling and generating dust during transport. Designate offloading areas at least		Cost incorpor ated in	Frequency	Measureme nt;	regulations and reduction in visible dust from trucks. Adherence to specified offloading zones.		One-off		
4	2.	Mobilizatio n of equipment and workers to site.	Carbon emission from exhaust fumes of vehicles carrying construction materials to work/project areas may also occur.	Use vehicles, plants and equipment that are in good condition generally less than 5 years old. Ensure Vehicles are	Contractor s	@ N26,095 x 5 Lots = N130,475 (85)	Gaseous Pollutants such as SO ₂ , NO ₂ , CO ₂ , CO, VOCs, H2S, TSP	In-situ Air Quality Measureme nt Visual observation	Air quality parameters are within NESREA permissible Limits. Contractors compliance to	Road corridors	One-off	SPIU; Safeguards Unit; ESO; Supervisor y Consultant;	300,860 (196)

S/N	Activity	Potential E&S Risks & Impacts	Mitigation Measures	Responsi bility for Mitigation	Cost of Mitigatio n Naira/	Parameter s to be Measured	Method of Measureme nt	Performan ce Indicator	Sampling Location	Freque ncy of Monito	Responsib ility of Monitoring	Cost of Monitori ng
3.	Site clearance on either side of the centreline at designated roads	Loss of beneficial flora and economic crops located within the ROW of the road, including the carriageway (addressed in the RAP). This clearing could also expose the area and increase the risk of surface erosion and rill formation. Notable locations include all roads in Upgrade Lot 4.	Limit clearing activities to the exact width necessary for road rehabilitation, avoiding unnecessary removal of vegetation outside the ROW. Implement RAP Establish buffer zones around ecologically significant or economically valuable vegetation. Implement erosion	Contractor s Safeguard s Unit; SSO; RAP Consultan t Contractor	N/A Included in RAP Impleme ntation Cost 360,725 (235)	Loss of beneficial flora RAP Implement ation Complianc e to creation of buffer zones Risk of erosion and rill formation, particularly in cleared areas.	Physical field survey/ measureme nt and mapping, pre and post- photographs RAP Compliance Audits & Validations; Stakeholder engagement Visual observations Visual inspection and field measureme nts of rill	Adherence to Designated Zones (percentag e site clearing within specified road width as outlined in the project design) Complianc e to RAP implementa tion; PAP and stakeholder s' satisfaction	200meters before the failed CDS at Igwu River bridge and beyond. Lot 4 roads as well as all project locations where there are encroachm ents which could result in site clearing, physical and economic displaceme nt—refer to the RAP, and suface erosion.	Every 2 weeks (periodi c checks during the clearing process) One-off Weekly during active site clearand ce, and monthly during	SPIU; Safeguards Unit; ESO; Supervisor y Consultant; Safeguards Unit; SSO	101,310 (66)
4.	Mobilizatio n of equipment and workers to site.	Noise levels may exceed the NESREA National Environment al (Noise Standard and Control) (75dB) due to the operation of vehicles.	Where possible retrofit all hired vehicle exhausts with mufflers/ silencers to minimize noise. Schedule mobilization during off- peak hours. (5-6am and 7-8pm daily). Enforce speed limits to reduce engine noise and tire screeches associated with harsh	Contractor s	@81,355 x 5 Lot = N406,755 (265)	Vehicle speed; harsh braking events Vehicle Maintenan ce Records. Usage of DEFictor	Noise monitoring using noise meters. Use of speed monitoring devices Maintenance Logs and Inspections Observation	Complianc e with Noise Standards - NESREA National Environme ntal (Noise Standard and Control) of 50dB. Adherence to Speed Limits Complianc e to vehicle	Project locations.	Weekly	SPIU; Safeguards Unit; ESO; Supervisor y Consultant;	82,890 (54)

S/N	Activity	Potential E&S Risks & Impacts	Mitigation Measures	Responsi bility for Mitigation	Cost of Mitigatio n Naira/	Parameter s to be Measured	Method of Measureme nt	Performan ce Indicator	Sampling Location	Freque ncy of Monito	Responsib ility of Monitoring	Cost of Monitori ng
5.	Dewaterin g of the roads.	Surface Water Contaminati on: Suction and removal of water from potholes and pools of water along the road may potentially lead to the discharge of sediments and pollutants into nearby water bodies. Note: No surface waters were found along	Use eco- friendly dewatering aids or polymers to improve sediment settling and minimize suspended solids discharge. Install appropriate filters or geotextiles in dewatering systems to trap sediments and pollutants before discharging water.	Contractor s	@ N135,080 x 3 Lots = N405,240 (264)	Sediment concentrati ons Effectivene ss of sediment control measures	Sampling and laboratory analysis - to measure sediment concentratio ns	Surface water quality is within permissible limits. Operational efficiency of controls	Streams and rivers along the road corridors (specificall y for Lots 1, 3 and 4)	Weekly	SPIU; Safeguards Unit; ESO; Supervisor y Consultant; Abia SMEnv,	150,430 (98)
6.	Site Clearing Removal of topsoil/ unsuitable materials to sub- grade level	Generation of brush piles and vegetative debris (e.g., grass clippings, leaves, brush pruning', tree limbs and stumps).	Implement WMP Engage local community to reuse brush piles as mulches and implement composting technique for vegetative debris.	Contractor s	@ N50,655 x 5 Lots = N253,275 (165)	Effectivene ss of WMP Volume of brush piles and vegetative debris generated.	WMP Audits Quantitative measureme nt; visual estimation.	WMP compliance Reduction in Volume of generated wastes.	Road corridors	Weekly	SPIU; Safeguards Unit; ESO; Supervisor y Consultant;	101,310 (66)

S/N	ActivityPotential £& Risks & ImpactsRemoval of topsoil/ unsuitable materials to sub- grade levelThe removal of topsoil od (e.g., Nbawsi- Agburuike- Low already visible asbestos pipes, potentially leaving hazardous materials exposed and abandoned, thereby posing serious health risks like lung cancer, asbestosis, and mesotheliom a to residents and workers.Excavation of fill materials from pitsLand degradation and increased susceptibility to erosion due to excavation of earth materials from borrow pits.		Mitigation Measures	Responsi bility for Mitigation	Cost of Mitigatio n Naira/	Parameter s to be Measured	Method of Measureme nt	Performan ce Indicator	Sampling Location	Freque ncy of Monito	Responsib ility of Monitoring	Cost of Monitori ng
7.	Removal of topsoil/ unsuitable materials to sub- grade level	The removal of topsoil during upgrade road (e.g., Nbawsi- Agburuike- Umuomaigh iukwu, Lot 3) may unearth already visible asbestos pipes, potentially leaving hazardous materials exposed and abandoned, thereby posing serious health risks like lung cancer, asbestosis, and mesotheliom a to residents and workers.	Implement Asbestos WMP Conduct a pre- construction survey to identify and map locations of asbestos pipes. Engage certified hazardous materials contractors to handle and dispose of asbestos safely. The Abia SMEnv licensed waste vendor shall wet, enclose and safely transport removed asbestos materials to	SPIU Safeguard s Unit Contractor s Certified Hazardou s Materials Contractor	3,070,000 (2,000) – specifica Ily for Lot 3.	Asbestos WMP Implement ation Quantity of asbestos removed. Engageme nt of a state approved and certified hazardous materials contractor Air quality (asbestos fibril concentrati on in µg/ m³). PPE availability and use by	Audits, Checks and Verifications. Visual inspections and photographic records of removal sites. Letter of engagement , contracts, etc. Air sampling and laboratory analysis for asbestos fibrils.	SPIU/ Contractors Complianc e to AWMP Implementa tion Complete removal and proper disposal of all identified asbestos materials. Certified contractor engaged for asbestos removal and disposal. Air fibril concentrati ons within permissible exposure limits (<0.1 fibers/cm ³).	Sections of Nbawsi- Agburuike - Umuomaig hiukwu Road (Lot 3) where asbestos pipes are buried (GPS Coordinate s - N5.393075 E7.435480)	One-off Once, during initial site survey. One-off Weekly inspecti ons and samplin g. One-off	FPMU ESO, SPIU, Safeguards Unit, ESO, Supervisor y Consultant.	1,535,00 0 (1,000)
8.	Excavation of fill materials from borrow pits	Land degradation and increased susceptibility to erosion due to excavation of earth materials from borrow pits.	Borrow pit design and siting should factor and carefully consider slope, size, and location to minimize the impact on land stability and reduce susceptibility to erosion. Implement a phased excavation approach, followed by timely reclamation of decommissio ned borrow pits.	Contractor	Refer to the rehabilita tion phase for the cost of impleme nting Borrow Pit Manage ment and Reclamat ion Plan	Rate of erosion in and around the borrow pits	Useder, Use of erosion pins to measure changes in soil stability; Visual observation.	Reduced erosion rates around borrow pits. Percentage of decommiss ioned borrow pits that have undergone complete reclamation and revegetatio n.	Sites used as borrow pits for the project.	Monthly	FPMU ESO; SPIU; Safeguards Unit; ESO; Supervisor y Consultant;	153,500 (100)
Sub and	o-total Mitigatic I Impacts)	on & Monitoring	Cost (Environm	ental Risks	4,697,080 (3,060)				'		·	2,509,72 5
в.	SOCIAL IMP/	ACTS										(1 6 (5)

S/N	Activity	Potential E&S Risks & Impacts	Mitigation Measures	Responsi bility for Mitigation	Cost of Mitigatio n Naira/	Parameter s to be Measured	Method of Measureme nt	Performan ce Indicator	Sampling Location	Freque ncy of Monito	Responsib ility of Monitoring	Cost of Monitori ng
8.	Mobilizatio n of equipment and workers to site.	Traffic build- up is envisaged particularly along Calabar – Ikot Ekpene expressway – the access road to Nkim Itam – Ikot Anie Itam (Lot 2). This may result in minor delay in commuters' travel time.	Implement Traffic Management Plan (TMP) See Annex 9 Schedule mobilization and haulage of equipment for off peak periods e.g. evening hours or weekends Liaise with FRSC for traffic management.	Contractor (Lot 2)	@ N311,168 x 1 Lot = N311,168 (221)	Traffic levels; Implement ation and effectivene ss of TMP Complianc e to scheduling ; community feedback Liaison with FRSC	Checks and verifications Surveys, Complaint Logs, and Public Meetings Minutes of liaison, negotiation or meetings. Checks, inspections and verifications	Improved Travel Time Positive Community Feedback Minimal traffic builds up attributed to the mobilizatio n activity.	200m stretch of Calabar – Ikot Ekpene expressway – the access road to Nkim Itam – Ikot Anie Itam	During transpo rt of constru ction material s.	SPIU; Safeguards Unit; SSO; Supervisor ý Consultant;	76,032 (54)
9.	Mobilizatio n of equipment and workers to site; Site marking and pegging; Site clearance on either side of the centerline at designated roads.	Grievance: Owners of farms, (especially those I growing cash crops such as cassava, oil palm, yam, etc.) and petty traders/road side businesses, may express displeasure or grievances.	Conduct early notification and consultations with local communities, especially farm owners and roadside businesses, to understand their concerns, share project details, and explore potential collaboration. Work with local communities to identify and establish alternative	SPIU Communi cation Specialist	Included (72) Included in RAP impleme ntation cost	PAPs' project perception s and stakeholde r satisfaction s atisfaction s doption and usage of identified alternative access routes	Surveys, consultation s and feedback sessions Observation al checks and surveys Checks & verifications	Community Satisfaction Index Effective use of alternatives Complianc e	Project locations	Weekly	FPMU SSO; SPIU; Safeguards Unit; SSO; Supervisor y Consultant;	202,752 (144)
10.	Nobilizatio n of equipment and workers to site	Livestock Roadkill: may occur as trucks move through some project areas where open grazing of livestock is practiced.	Enforce speed limits; Train drivers to reduce vehicle speed in areas with open grazing. Restrict mobilization activities during night- time hours when visibility is reduced, ord the risk of	Contractor S	N/A	Complianc e with speed limits Incidents of livestock roadkill	Speed monitoring devices Surveys and incident reports	Higher level of compliance and reduced risk of roadkill Percentage reduction in incidents of livestock roadkill	Project communitie s where open grazing of livestock is practiced.	Weekly	SPIU; Safeguards, Unit; SSO; Supervisor y Consultant;	50,688 (36)
Sub Imp	p-total Mitigatic acts)	on & Monitoring	Cost (Social Ris	<mark>ks and</mark>	<mark>412,544</mark> (293)							<mark>329,472</mark> (234)
<mark>C.</mark>	OCCUPATIO	NAL HEALTH A	ND SAFETY (OH	S) IMPACTS								

S/N	Activity	Potential E&S Risks & Impacts	Mitigation Measures	Responsi bility for Mitigation	Cost of Mitigatio n Naira/	Parameter s to be Measured	Method of Measureme nt	Performan ce Indicator	Sampling Location	Freque ncy of Monito	Responsib ility of Monitoring	Cost of Monitori ng
11.	Mobilizatio n of equipment and workers to site; Offloading of supplied equipment ; Site clearing, etc.	Likelihood of accident occurring due to Unsafe Conditions and Unsafe Behaviours. Offloading of materials (bricks, cement,] paints, wood, iron, rods, etc.) from trucks may present oHS risks and impacts e.g. falling objects. Transport of procured construction materials to work sites, may predispose poster of procured	Conduct OHS training and education; HazCom, routine JHA/ PHA; Implement site-specific OHSMP Develop and implement safe offloading procedures, including the use of proper equipment (cranes, forklifts) and PPEs to minimize the risk of falling objects. Ensure that construction materials are securely loaded and properly fastenod prior	Contractor S	@ N350,592 x 6 Lots = N2,103,5 52 (1,494)	Number of Accidents or Incidents Adherence to Offloading Procedure s; Use of proper equipment and PPEs Transporta tion Safety Complianc e; Adherence to speed limits. Vehicle inspections	Incident Reports and Records of any Accidents or Near Misses. Spot checks and periodic audits Inspections and audits of vehicles and transportatio n practices	Accident Frequency Rate Complianc e to offloading procedures and use of PPEs Transportat ion Safety Score	Project corridors	Daily	SPIU; Safeguards Unit; Supervisor y Consultant;	N311,16 8 (221)
Sub Imp	o-total Mitigatic acts)	on & Monitoring	Cost (OHS Risk	s and	N2,103,5 52 (1,494)							N311,16 8 (224)
Tota	al ESMP Cost (Pre-Rehabilitati	on Phase)		<mark>4,185,984</mark> (2,973)							1,446,01 6 (1,027)

Table 33: ESMP Mitigation and Monitoring Matrix Table for Roads Selected for Spot Improvement (Rehabilitation Phase).

S/N	Activity	Sub- Activity	Potential Risks & Impacts	Mitigation Measures	Responsi bility for Mitigatio	Cost of Mitigatio n USD/	Paramet ers to be Measure	Method of Measurement	Perform ance Indicator	Samplin g Location	Frequ ency of Monit	Respons ibility of Monitori	Cost of Monitor ing
D.	ENVIRON	MENTAL RIS	SKS & IMPACTS										
1a. 1b.	Civil Works; Excavat ion hauling of unsuita ble materia l at failed road section s to s ubgra de level;	Operatio n and use of vehicles and machiner y; stacking of materials; a) Road Survey; b) Excavatin g to the required depth to reach the subgrade level; Prime coating of surface with	Soil Contaminati on and Degradation : Leakages may occur from vehicles or stacked equipment containing lubricants, seeping through into the soil is likely in areas covered by earth. Excavation activities may disturb the natural soil structure, leading to erosion and sediment runoff	Conduct regular maintenanc e to prevent leakages. Provide designated storage areas with impermeabl e surfaces. Implement proper containment materials. Also, carryout regular inspections for leaks or spills. Implement erosion control measures (e.g., silt fences, sediment traps, rip	Contracto rs	@ N50,688 x 6 Lots = N304,128 (216)	Spills or leakages; soil quality indicators (pH, nutrient levels, contamin ants – specificall y THC, TPH, OC). Sediment runoff rates, erosion control effectiven ess	Soil sampling and laboratory analysis. Visual inspections; presence of sediment in runoff	Monitorin g reports demonstr ating complian ce with soil quality standard s. Reduced sediment runoff and effective erosion control measure s	Equipme nt staging areas - stacking points.	Weekl y	SPIU; Safeguar ds Unit; ESO; Supervis ory Consulta nt;	101,376 (72) 150,656 (107)
	Prime coating of surface with S124; Civil Works;	S124	Prime coating activity may introduce potentially harmful chemicals into the environment, impacting soil quality.	rap, cover crops – e.g. broadleaf carpet grass) in eroded areas/ slopes. Stabilize exposed soil surfaces promptly. Coating should be such that it does not exceed the defineated road width				Observational checks, monitoring water flow	Reduced road erosion; Effective water channelli ng during rehabilitat ion activities.	Erosion prone areas along the road's corridors	Weeki y		

S/N	Activity	Sub- Activity	Potential Risks & Impacts	Mitigation Measures	Responsi bility for Mitigatio	Cost of Mitigatio n USD/	Paramet ers to be Measure	Method of Measurement	Perform ance Indicator	Samplin g Location	Frequ ency of Monit	Respons ibility of Monitori	Cost of Monitor ing
2.	Excavat ion of fill materia I from approv ed borrow pits; Excavat ion of earth drains; Excavat ion hauling of unsuita ble materia I at failed road section s to subgra de level;	Excavatio n activities.	Impacts on Natural Habitats Excavation activities may disrupt local habitats (rivers, streams, ponds, forest), burrowing/ fossorial organisms and wildlife and fishes.	Implement erosion control measures around excavation sites to prevent sediment runoff into nearby streams, rivers, etc. Minimize disturbance to natural habitats by controlled excavations and carefully planning the hauling routes and avoiding sensitive areas. Reuse excavated materials where feasible to minimize the neaed for	Contracto rs	Cost incorpor ated in D1b Above	Changes or disruption s in habitat structure	Ecological surveys, habitat assessments, and wildlife monitoring Vegetation surveys, species inventories	Minimal disturban ce to habitats and wildlife populatio ns Maintena nce or enhance ment of plant and animal	Natural Habitats along road corridors (rivers, streams, ponds, forest),	Monthi y	F P M U ESO; SPIU; Safeguar ds Unit; ESO; Supervis ory Consulta nt;	101,376 (72)
3.	Civil Works;	Operatio n of work vehicles and constructi on equipme nt.	Air Pollution: Carbon and Greenhouse Gas (GHG) emissions	Use vehicles, plants and equipment that are in good condition generally less than 5 years old. Fuel switching-Fuel switching from high to low-carbon content fuels (where available) Energy	Contracto rs	@ N25,344 × 6 Lots = N152,064 (108)	Gaseous Pollutant s such as SO2, NO2, CO2, CO2, CO2, VOCS, H2S, TSP	In-situ Air Quality Measurement	Air quality paramete rs are within NESREA MPL	Project corridors	Monthl y	SPIU; Safeguar ds Unit; Supervis ory Consulta nt; A K S E P WMA	450,560 (320)

S/N	Activity	Sub- Activity	Potential Risks & Impacts	Mitigation Measures	Responsi bility for Mitigatio	Cost of Mitigatio n USD/	Paramet ers to be Measure	Method of Measurement	Perform ance Indicator	Samplin g Location	Frequ ency of	Respons ibility of Monitori	Cost of Monitor ing
4.	Excavat ion hauling of unsuita ble materia l at failed road section s to subgra de level; Filling, spreadi ng, shapin g and ccompac ting approv	a) Road Survey; b) Excavatin g to the required depth to reach the subgrade level; c) Loading excavate d material onto trucks; d) Hauling unsuitabl e material away from the excavatio n site to	Fugitive dust generation.	Dampen or water the road surface using water trucks or sprinkler systems prior to equipment supply. Provide workers and PAPs with appropriate PPEs such as respirators or masks, to reduce dust inhalation. Carryout rehabilitatio n during off peak	Contracto rs	@ N25,344 for hiring tanker x 2 times per week x 8 weeks avg. = N405,504 @ N405,504 per Lot x 6 Lots = N2,433,0 24 (1,728)	Fugitive dust generatio n (PM2.5 and PM10). Use of PPE by workers & PAPs during painting and welding activities	Visual observation; Observation and record- keeping of PPE usage.	VOC levels are below the NESREA regulator y threshold	Project corridors	Weekl y	SPIU; Safeguar ds Unit; Supervis ory Consulta nt;	150,656 (107)
5.	Civil Works; Civil works; Prime coating of surface with S124;	Operatio n of machiner y, material cleaning and lubricant refilling.	Potential Surface Water Contaminati on: from machinery oil/lubricant spills, battery acid, etc., particularly during material cleaning or lubricant refilling, around areas such as Eyonsek - Eniongo - Eyobasi with a spur to Eniogo Beach, ending at Eniogo River	Implement spill prevention and containment procedures. Provide spill kits and training for immediate response to spills. Conduct regular equipment maintenanc e to prevent leaks and spills. Establish designated areas for material handling and storage	Contracto rs	@ N75,328 x 6 Lots = N451,968 (321)	Presence of oil, lubricants , or other hydrocar bon contamin ants (cement mix, prime coating materials) in surface water. Adherenc e to spill preventio n and containm ent procedur es	Visual inspections, water sampling, and laboratory analysis. Regular inspections of equipment, materials, and construction sites	Absence or minimal presence of contamin ants in surface water. High complian ce to proffered mitigation measure s.	Eniogo River along Eyonsek - Eniongo - Eyobasi with a spur to Eniogo Beach, and all other surface waters along the road corridors	Weeki y	SPIU; Safeguar ds Unit; Supervis ory Consulta nt; A K S E P WMA	301,312 (214)

S/N	Activity	Sub- Activity	Potential Risks & Impacts	Mitigation Measures	Responsi bility for Mitigatio	Cost of Mitigatio n USD/	Paramet ers to be Measure	Method of Measurement	Perform ance Indicator	Samplin g Location	Frequ ency of	Respons ibility of Monitori	Cost of Monitor ing
			Waste- Generation of waste including such as food waste, debris, top soil, disused materials and containers, toxic waste (such as asphalt, spent oils and chemicals) etc.	Develop and implement the detailed Waste Managemen t Plan (WMP) (See Annex 6) Ensure segregation of waste to facilitate reuse and recycling opportunitie s. Ensure toxic and hazardous wastes are stored in labelled closed containers with secondary containers. Ensure usage of AKSEPVM	Contracto r	@ N450,560 x 5 Lots = N2,252,8 00 (1,600)	Contracto r's WMP Evidence of waste segregati on Waste storage facility Waste vendor licenses and waste evacuatio n documen tation	Visual Observation Interview	Contracto r's Complian ce	Weekly	Project Areas	A K S - RAAMP PIU - ESO AKSEP WMA	301,312 (214)
6.	Civil works;	General road rehabilitat ion activities.	Project activities may affect water and sanitation conditions, increase chances of stagnated water, which may lead to waterborne diseases.	Ensure proper design and construction of drainage systems to prevent stagnation of water and promote effective water flow away from the project area. Ensure proper backfilling of installed drainages and implement a moistonoge	Contracto rs	@ N25,344 x 6 Lots = N152,064 (108)	Presence of sanitation hazards (e.g., stagnant waste accumula tion); Effectiven ess of drainage systems, water flow patterns.	Physical observations during site inspection. Visual inspections, monitoring water levels and flow rates.	Minimal stagnatio n of water, Effective drainage of runoff away from the project area. Minimal silt accumula tion in	Drainage s along the road corridors.	Biwee kly	SPIU; Safeguar ds Unit; Supervis ory Consulta nt; A K S E P WMA	50,688 (36)
7.	Civil Works	General Rehabilit ation Activities	Rehabilitatio n activities may increase the occurrence of open defecation by construction workers	Provision of gender specific mobile toilets (Porta- Potty) and enforcement of their use	Contracto r	@ N350,592 x 6 Lots = N2,103,5 52 (1,494)	Complian ce to the provision and enforcem ent of the use of mobile toilets	Inspections, checks and verifications	Reduced practice of open defecatio n and improved hygiene and sanitation	Project Areas	One- off	SPIU; Safeguar ds Unit; ESO; Supervis ory Consulta nt;	76,032 (54)

S/N	Activity	Sub- Activity	Potential Risks & Impacts	Mitigation Measures	Responsi bility for Mitigatio	Cost of Mitigatio n USD/	Paramet ers to be Measure	Method of Measurement	Perform ance Indicator	Samplin g Location	Frequ ency of	Respons ibility of Monitori	Cost of Monitor ing
8.	Civil Works	General Rehabilit ation Activities	Waste Generation: Increase in on and off- site quantities of generated construction wastes as well as toxic waste (such as asphalt, spent oils and chemicals) etc.	Implement WMP (See Annex 6) to segregate, recycle, and dispose of construction waste responsibly. Encourage the recycling of reusable materials onsite to minimize waste generation. Provide designated waste collection areas and bins on-site. Ensure proper handling and storage of toxic materials such as chemicals and spent oils to prevent spills and leaks. Liaise with AKSEPWM A for the evacuation and safe disposal of construction wastes Ensure regular collection	Contracto	@ N450,560 x 6 Lots = N2,703,3 60 (1,920)	Complian ce to WMP implemen tation; Frequenc y and effectiven ess of waste collection and disposal. Quantity of constructi on waste generate d. Presence of odour and signs of pest infestatio n.	Checks and verifications Documentatio n of waste collection schedules and disposal activities Regular waste audits and documentation of waste volumes. Visual inspections and pest monitoring.	Reductio n in constructi on waste generatio n over time. Absence of odour and pest infestatio n related to food waste	Project areas	Biwee kly	SPIU; Safeguar ds Unit; ESO; Supervis ory Consulta nt;	301,312 (214)

S/N	Activity	Sub- Activity	Potential Risks & Impacts	Mitigation Measures	Responsi bility for Mitigatio	Cost of Mitigatio n USD/	Paramet ers to be Measure	Method of Measurement	Perform ance Indicator	Samplin g Location	Frequ ency of	Respons ibility of Monitori	Cost of Monitor ing
9.	Excavat ion of fill materia I from approv ed borrow pits; Excavat ion of new borrow pits.	Excavatio n of fill material from approved borrow pits; Excavatio n of new borrow pits.	Excavation of earth from existing borrow pits will result in widening of the borrow pit perimeter and may predispose areas currently suffering erosion to further erosion and inundation, especially where existing borrow pits were not reclaimed from previous activities.	As much as possible, refrain from gathering earth materials from borrow pits that are susceptible to erosion. If sourcing earth materials from erosion- prone pits is unavoidable , deploy erosion control measures around borrow pits to mitigate widening and prevent additional erosion. Reclaim and stabilize used sections of existing borrow pits to prevent erosion and inundation. Monitor and enforce proper waste disposal presting to the section prone pits is used	Contracto r	@ N501,248 x 6 Lots = N3,007,4 88 (2,136)	Borrow pit perimeter and erosion rates. Waste disposal in borrow pits. Borrow pit reclamati on and revegetat	Inspections of borrow pits to measure changes in perimeter and erosion levels Regular inspections Visual observation Checks & verifications	Stable borrow pit perimeter s and minimal erosion Absence of contamin ants and wastes in borrow pits Percenta ge borrow pit Percenta ge borrow pit s	Existing Borrow Pits and New Borrow Pit Sites.	One- off	FPMU ESO; SPIU; Safeguar ds Unit; ESO; Supervis ory Consulta nt;	301,312 (214)
10.	Excavat ion – hauling of unsuita ble materia I at failed road section s to subgra de level; Filling, spreadi ng, shapin g and compac ting approv ed fill materia	Excavatio n activities, Haulage, Asphaltin g, Mixing of cement and matrices, etc. and Use of machineri es and equipme nt	Noise level may exceed the NESREA National Environment al (Noise Standard and Control)	Conduct regular maintenanc e on equipment to minimize noise emissions. Implement noise control measures during construction , such as mufflers or silencers on machinery. Provide workers and PAPs with PPEs such as earplugs or earmuffs. Train workers on	Contracto r	@ N80,021 x 6 Lot = N480,128 (341)	Noise levels in decibels (dB). Installatio n of noise mufflers on machines Distributi on of PPEs to PAPs and workers	Use of Noise meters Inspections and verifications Checks and verifications	Noise levels are within NESREA permissib le limits (75dB) Minimal noise from work equipme nt and machiner y Contracto rs' complian ce	Project areas	Twice weekly	SPIU; Safeguar ds Unit; ESO; Supervis ory Consulta nt;	50,688 (36)

S/N	Activity	Sub- Activity	Potential Risks & Impacts	Mitigation Measures	Responsi bility for Mitigatio	Cost of Mitigatio n USD/	Paramet ers to be Measure	Method of Measurement	Perform ance Indicator	Samplin g Location	Frequ ency of	Respons ibility of Monitori	Cost of Monitor ing
11.	Excavat ion – hauling of unsuita ble materia l at failed road section s to subgra de level; Civil Works	Excavatio n activities around Affi Uda - Udinghie – Akprangk prang. (Lot 5) Operatio n and use of heavy machiner y and constructi on equipme nt	Excavation activities in the unstable midsection of the road, which is already prone to erosion and flooding, could worsen its condition, resulting in widening and increased susceptibility to floods and erosion. Where project roads pass through steep terrain with deep steep scarps on other or	Stabilize the midsection of the road and elevate. Additionally, reconfigure the stream to mitigate the risk of future flooding on the road. Reinforce vulnerable sections of the road with retaining walls, gabion baskets, or slope stabilization measures to prevent road	Contracto rs	1,500,928 (1,066)	Erosion and flood control Road surface condition, stability assessm ents Vibration levels generate	Site inspection and visual observations Visual inspections, geotechnical surveys, and monitoring equipment Use of vibration monitoring equipment placed strategically along the road.	Erosion is checked at the midsectio n; Stream reconfigu ration is performe d. Maintena nce of road stability and preventio n of road breakage s or slips. Reductio n in whoritan	Affi Uda - Udinghie – Akprang kprang Road Ubodung Road- Esit Eket Road – (Lot 5)	One- off	SPIU; Safeguar ds Unit; ESO; Supervis ory Consulta nt;	301,312 (214)
	Sub-total and Impa	Mitigation & cts)	Monitoring Cos	st (Environment	al Risks	15,392,25 6							2,337,2 80
E.	SOCIAL F	RISKS & IMP/	ACTS										(1 660)
12.	Civil Works	Road rehabilitat ion activities	Road users may suffer restricted access to selected roads when works are ongoing.	Early notification of PAPs and road users. Implement GRM Sectionalize rehabilitatio n works into manageable portions to allows for a segment of the roads to be rehabilitated at a time. Collaborate with locals to identify alternative routes and detours to minimize disruption to road users.	Contracto rs GRC	@ N76,032 x 6 Lots = N456,192 (324)	Notificati on of PAPs Complian ce to sectionin g works. Use of identified alternate routes Complian ce to work schedulin g	PAPs consultation and interviews Site visits and visual inspections.	Minimal grievance by PAPs No or minimal access restriction	Road corridors	Weekl y	SPIU; Safeguar ds Unit; SSO; Supervis ory Consulta nt; GRC	101,376 (72)
13.	Wideni ng of should ers of the existing road	Reclamat ion of the ROW	Physical and Economic Displaceme nt: Implementati on of civil works (widening of the shoulders of	Early notification of PAPs Implement RAP and compensati on to affected individuals or	SPIU; Communi cations Specialist Safeguard s Unit; SSO; RIC	Incorpor ated in RAP Impleme ntation Cost	RAP Impleme ntation and timely disburse ment of compens ation and livelihood restoratio	Record- keeping of compensation payments and livelihood support provided	Minimal grievance attributed to physical and economic displace ment	Road corridors/ stretch particular ly narrow sections where displace ment is likely.	One- off	FPMU SSO; SPIU; Safeguar ds Unit; SSO; Supervis ory Consulta nt;	150,656 (107)

S/N	Activity	Sub- Activity	Potential Risks & Impacts	Mitigation Measures	Responsi bility for Mitigatio	Cost of Mitigatio n USD/	Paramet ers to be Measure	Method of Measurement	Perform ance Indicator	Samplin g Location	Frequ ency of	Respons ibility of Monitori	Cost of Monitor ing
14.	Wideni ng of should ers of the existing road	Reclamat ion of the ROW Construct ion of earth drains	Temporary Power Outage: Power distribution pole relocation may occur along Umume- Uboro Oro- Oruko Road during road widening or drain construction, potentially causing damages, power outages, and eliciting negative reactions from relevant	Explore the option of adjusting the road alignment to the right to entirely avoid any interference with the power distribution poles. Communicat e with local residents and businesses to inform them about scheduled temporary power outage. Coordinate	Contracto r	@ N50,688 x 6 Lots = N304,128 (216)	Complian ce to road alignment Complian ce to early notificatio n Timelines s of pole relocation by PHEDC	Visual observation	Impact to power distributio n poles is evaded. Positive feedback indicating effective communi cation and minimal disruption Adherenc e to planned pole	Location s where power distributi on poles encroach ed into the Umume- Uboro Oro- Oruko Road	One- off	SPIU; Safeguar ds Unit; SSO; Supervis ory Consulta nt	N50,68 8 (36)
15.	Desiltin g of existing silted drains and culvert s; Prime coating of surface with S124 and Surface dressin g of slopes at	Desilting of existing silted drains and culverts; Prime coating of surface with S124 and Surface dressing of eroded slopes at designate d locations	Grievances: from PAPs using streams resulting from contaminatio n of surface water due to sediment laden runoffs during stone pitching, prime coating activities etc.	Implement GRM Minimize risk of surface water contaminati on during road construction and desilting of culverts/ drains. Carryout desilting activity at night when stream use is minimal. Reduce labour influx by sourcing	GRC Contracto rs	@ N301,312 x 6 Lots = N1,807,8 72	Impleme ntation and effectiven ess of GRM Grievanc es Complian ce to hiring unskilled labour locally Complian ce to complian ce to	Implementatio n progress assessment and performance evaluation on GRM Interviews, surveys, consultations. Community engagement and feedback Visual observation	Project grievance as very minimal and addresse d promptly as they arise. PAP perceptio n and stakehold er satisfacti on	Project corridors	Twice weekly	SPIU; Safeguar ds Unit; SSO; Supervis ory Consulta nt; GRC	150,656 (107)

S/N	Activity	Sub- Activity	Potential Risks & Impacts	Mitigation Measures	Responsi bility for Mitigatio	Cost of Mitigatio n USD/	Paramet ers to be Measure	Method of Measurement	Perform ance Indicator	Samplin g Location	Frequ ency of Monit	Respons ibility of Monitori	Cost of Monitor ing
16.	Continu ous Civil Works	Civil works and steady influx of labour	Labour influx may lead to: Potential pressure on community resources e.g., water points, disbursemen t of cash from Point of Sale (POS) providers, etc. Increase risk of communicabl e diseases, Sexually Transmitted Infections (STIs) and Sexually Transmitted Diseases (STDs) as a result of consensual and transactional sexual intercourse between workers, locals and	Workers' camp to include utilities (water, separate POS service providers, waste disposal point, leisure/ sports facilities, etc.) and prohibition of use from other community sources; Vaccinate workers against common and locally prevalent diseases; Provide HIV/ AIDS and STDs campaigns and sensitization ; Distribute condoms; Ensure	Contracto r Project Engineer	@ N201,344 x 6 Lots = N1,208,0 64 (858)	Incorpora tion of utilities in worker's camp Vaccinati on of workers HIV/ STDs sensitizat ion and campaign s Signing of COC Engagem ent of local law enforcem ent.	Checks and verifications Verifications Evidence of Sensitization/ Campaign (e.g. flyers, manual, reports, attendance sheets, etc.) Checks and validation.	Minimal pressure on communit y resource s. Reduced cases of disease transmiss ion Contracto rs' complian ce Antisocial behaviou rs and social vices amongst workers is reduced.	Workers' camp	One- off	SPIU; Safeguar ds Unit; SSO; Supervis ory Consulta nt;	150,656 (107)
			Risk of illicit	Code of Conduct (CoC) (See					Complian ce				
17.	Continu ous Civil Works	Civil works and steady influx of labour	SEA/SH: Teenage and adolescent females/ males as well as adults, may be exposed to SEA/SH as a result of interactions with workers and possibly followers.	Annual 40 Ensure all contractor workers signs the Code of Conduct (CoC) (See Annex 10) and be sensitized on zero tolerance for sexual integration with community. Conduct GBV sensitization	Contracto rs SPIU; Safeguard s Unit; GBV Specialist;	@ N150,656 x 6 Lots = N903,936 (642) TBD	Signing of code of conduct of GBV sensitizat ion Establish ment of GBV GRM	Checks and validation Verifications Verifications	Zero cases of SEA/SH Increase d SEA/ SH awarenes s by workers.	Project locations and communi ties	Weekl y	FPMU GBV Specialis t; SPIU; Safeguar ds Unit; GBV Specialis t; SSO; Supervis ory Consulta nt;	N250,6 24 (178)

S/N	Activity	Sub- Activity	Potential Risks & Impacts	Mitigation Measures	Responsi bility for Mitigatio	Cost of Mitigatio n USD/	Paramet ers to be Measure	Method of Measurement	Perform ance Indicator	Samplin g Location	Frequ ency of	Respons ibility of Monitori	Cost of Monitor ing
18.	Continu ous Civil Works	Civil works and steady influx of labour	VAC: Children may face harassment or violence from workers, particularly when asked to perform tasks like buying food or assisting with materials.	Ensure that children and minors are not employed directly or indirectly on the project. Communicat ion on hiring criteria, minimum age, and applicable laws should	Contracto rs	Cost incorpor atedin E17 above	VAC	Checks and verifications	Zero cases of VAC	Project locations and communi ties	Weekl y	SPIU; Safeguar ds Unit; SSO; Supervis ory Consulta nt; GBV Officer	Cost incorpo rated in E17 above
19.	Continu ous Civil Works	Civil works and steady influx of labour	Security: Risk of Robbery and Extortion Activities along some selected roads: Construction Workers may be susceptible to robbery and extortion including equipment theft from local hoodlums and pirates along Eket - lbeno - Nditia Road, Umume -Uboro Oro - Oruko Road - Lot 5	Obtain a Social Licence to Operate (SLO) from the host communities prior to commence ment of civil works. Liaise with and build positive relationships with vigilantes and community watch groups to enhance local security support and ownership of project. Collaborate with local law enforcement agencies to enhance security presence and patrols around construction sites. Train construction	Contracto r (Lot 5)	250,624 (178)	Obtainme nt of SLO Level of communit y participati on in security initiatives Liaison with local law enforcem ent; Number and nature of security incidents Training of workers Effectiven ess of Security Mgt. Plan	Checks and validation Meetings, and feedback sessions with locals Letter of engagement; Incident reports, police records, and security logs. Attendance records; Training manuals and reports Verifications and consultations	Contracto r's complian ce Increase d communit y involvem ent and cooperati on in security efforts Reductio n in the frequenc y and severity of security incidents during rehabilitat ion activities in the locations. Increase d security awarenes s and emergen cy procedur es amage	Eket - Ibeno - Nditia Road and Umume -Uboro Oro - Oruko Road.	One-off	SPIU; Safeguar ds Unit; SSO; Supervis ory Consulta nt;	101,376 (72)

S/N	Activity	Sub- Activity	Potential Risks & Impacts	Mitigation Measures	Responsi bility for Mitigatio	Cost of Mitigatio n USD/	Paramet ers to be Measure	Method of Measurement	Perform ance Indicator	Samplin g Location	Frequ ency of	Respons ibility of Monitori	Cost of Monitor ing
20.	Constr uction of earthen drains at designa ted locatio ns along the road corrido r Excavat ion of fill materia I from	Construct ion of earthen drains at designate d locations along the road corridor Excavatio n of fill material from approved borrow pits	Community Health and Safety: Unreclaimed and abandoned borrow pits may pose safety risks for children. Dug-up concrete drains may also pose safety issues. Accidents while pedestrians are crossing	Barricade in-use borrow pits prior to reclamation. Install drains in sections/ batches to avoid multiple open pits, and barricade unfinished work at the end of each day. Install speed bumps and road	Contracto rs	Incorpor ated in the cost for Borrow Pit Reclamat ion (i.e. Environ ment – Section D9 above). @ N201,344 x 6 Lots =	Barricadi ng of in- use borrow pits and uncomple ted drainage channels Installatio n of speed bumps	Site inspection, Site inspection, Checks and verifications	Zero incidents and accidents associate d with open pits. No case of road accidents or livestock road kills.	Borrow pits, open drains and road corridors	One- off	SPIU; Safeguar ds Unit; SSO; Supervis ory Consulta nt;	Incorpo rated in the cost for Borrow Pit Reclam ation (i.e. Environ ment – Section D9 above).
	Sub-total Impacts)	Mitigation	& Monitoring	Cost (Social	Risks and	6,138,880 (4,360)							1,057,4 08 (754)
F.	OCCUPAT	FIONAL HEA	LTH AND SAFE	TY RISKS & IMP	PACTS								
21.	Civil Works;	Transport of constructi on materials and equipme nt to project sites	Workers' fatigue, road accidents, etc.	Ensure drivers adhere to regulated rest periods and limit working hours to prevent fatigue- related accidents. Provide comprehens ive training for drivers on safe driving practice. Conduct	Contracto rs	@ N350,592 x 6 Lots = N2,103,5 52 (1,494)	Complian ce with regulated rest periods, driver fatigue incidents. Training of drivers Vehicle maintena nce; Number ced	Driver logs; incident reports. Attendance records Incident reports, accident investigation records.	Reductio n in fatigue- related incidents, high complian ce with rest period regulatio ns. Complian ce Reductio p in the	Project locations and road corridors	Monthl y One- off	SPIU; Safeguar ds Unit; Supervis ory Consulta nt;	311,168 (221)
22.	Filling, spreadi ng, shapin g and compac ting approv ed fill materia I for sub- base and base course Civil	Road base material installatio n and road surfacing activities	Workers may be exposed to risk of dust, toxic bituminous fumes and elevated noise levels.	Implement on-site OHSMP; Provide workers with appropriate PPEs such as dust masks, respirators, ear plugs, and noise- cancelling headphones ; Conduct Make	Contracto rs		Impleme ntation and effectiven ess of site specific OHSMP Provision and enforcem ent of PPEs Conduct	Checks and verifications Checks and verifications Training reports and attendance sheets Site Inspection	Incident and accident rates. Consiste ncy in the use of PPEs OHS risk	Project Areas	Weekl y During civil works along Enyos ek – Eniogo -Fvob	SPIU; Safeguar ds Unit; Supervis ory Consulta nt;	
	works		workers to flammable toxic gases leading to injuries or fatalities from gas leaks and explosions from gas	provision for adequate caution signages Sensitize workers on this route with respect to the potential becord			of adequate caution signages Conduct of sensitizat ion for workers	and Visual Observation Sensitization reports and attendance sheets	injuries/ fatalities resulting from gas leaks and explosion s	Along Enyosek – Eniogo -Eyobasi and Ubodung Road- Esit Eket roads	-Eyob asi and Ubodu ng Road- Esit Eket roads		

S/N	Activity	Sub- Activity	Potential Risks & Impacts	Mitigation Measures	Responsi bility for Mitigatio	Cost of Mitigatio n USD/	Paramet ers to be Measure	Method of Measurement	Perform ance Indicator	Samplin g Location	Frequ ency of	Respons ibility of Monitori	Cost of Monitor ing
23.	Civil works	Conveyin g and lifting heavy	Collapse, injuries, death, Musculoskel	JHA/PHA; Safe Work Practices; Use of PPE; Provision of			Usage of PPEs and safe work	Visual observations;	Contracto r's Complian ce				
24.	Civil works	Civil and rehabilitat ion works.	Burns from fire, explosion or leakages of hazardous motorials like	fire extinguisher s.			practices						
	Sub-total Mitigation & Monitoring Cost (OHS Risks and Impacts)				2,103,552 (1,494)							311,168 (221)	
	Total ESMP Cost (Rehabilitation Phase)				23,634,68 8 (16,786)							3,705,8 56 (2,632)	

 Table 34: ESMP Mitigation and Monitoring Matrix Table for Roads Selected for Spot Improvement (Operation Phase).

S/N	Activity	Potential Risks & Impacts	Mitigation Measures	Responsibi lity for Mitigation	Cost of Mitigati on USD/	Paramete rs to be Measure	Method of Measure	Performa nce Indicator	Sampling Location	Frequenc y of Monitorin	Responsibi lity of Monitoring	Cost of Monitori ng USD/
G.	ENVIRONME	NTAL RISKS &	IMPACTS									
1.	Operation and usage of rehabilitate d roads	Rehabilitate d roads and drainages may be predisposed to potholes, weed overgrowth and sitt	Institute a community- based road maintenance group to carryout maintenance activity at periodically.	SPIU Project Engineer Road Maintenanc e	250,624 (178)	Set up of Road Maintena nce Committe e	Verificatio n and consultati ons	Road is being maintaine d regularly	Rehabilita ted road corridors	Monthly	SPIU-ESO,	101,376 (72)
2.		Deterioratio n of local air quality due to the release of dust and	Ensure installation of speed breakers and speed limit warnings at intervals, particularly	Contractors	Incorpor ated in the CASHE S Plan Rehabili	Speed bumps, Traffic signs, Markings etc.	Visual observati on	Minimal dust generatio n	Rehabilita ted road corridors	Quarterly	SPIU-ESO	Incorpo rated in the CASHE S Plan Rehabili
3.	Road maintenanc e	Generation of Maintenanc e waste	Reuse maintenance wastes as compost/manure for farms. Implement WMP Ensure usage of approved waste vendor for waste evacuation, disposal. Road Maintenance Committee will	Road Maintenanc e Committee	76,032 (54)	Re-use of road maintena nce waste Waste document ation Use of waste vendors for evacuatio n	Interviews and verificatio n Visual observati on Licence of waste vendors	Minimal littering of maintena nce waste Good housekee ping	Project areas	Monthly	SPIU-ESO	50,688 (36)
Sub Imp	o-total Mitigatio acts)	n & Monitoring	Cost (Environment	al Risks and	326,656 (232)							152,064 (108)
Н.	SOCIAL RISK	S & IMPACTS										
4.	Closure of civil works	Workers and personnel engaged in civil works will be relieved of their duties at the commence ment of the	Early notification of workers prior to their disengagement Some community based unskilled labourers can be integrated into the Road Maintenance	Contractor	N/A	Complian ce to early notificatio n Integratio n of unskilled labourers in Road	Interviews Checks, surveys and verificatio n	Zero grievance Minimal grievance from disengag ed workers	Project communiti es	One-off	SPIU; Safeguards Unit; SSO	50,688 (36)
5.	Operation and usage of rehabilitate d roads	Increased vehicular traffic on rehabilitated roads could	Implement and enforce speed limits on rehabilitated roads to	Contractor	N/A	Installatio n of speed limits;	Site inspection	Reduce noise levels	Road corridors	One-off	SPIU; Safeguards Unit; SSO	50,688 (36)
6.	Operation and usage of rehabilitate d roads	Accidents involving vehicles or pedestrians are likely to occur as a result of	Install road furniture and speed bumps Routine maintenance of roads.	Contractor	Incorpor ated in the CASHE S Plan Rehabili tation	Road accidents; installatio n of road furniture and	Surveys and interview, consultati ons, inspection	Number of cases or incidence s of road accidents	Rehabilita ted roads and project communiti es	Monthly	SPIU; Safeguards Unit; SSO	Incorpo rated in the CASHE S Plan Rehabili tation
Sub	Sub-total Mitigation & Monitoring Cost (Social Risks and Impacts)											101,376 (72)
Tota	Total ESMP Cost (Operation Phase)											253,440 (180)
Gra	nd Total ESMP	Cost (Spot Imp	provement)	28,147,3 28 (10,001)							5,405,31 2 (2,820)	

Note: Most of the cost are borne by the Contractor. The SPIU Safeguards team shall ensure and verify that the costs are integrated into the Contractors' BOQ. Mitigation costs are estimates, Contractors are expected to review and ensure final costs in the BOQ are realistic and can adequately mitigate stated impact.

7.1.1 Budgetary Allocation for the ESMP Implementation Per Lot

The E&S risk mitigation measures, along with their associated costs, identified in the preceding ESMPs for the proposed intervention packages (i.e. backlog maintenance, spot improvement, roads upgrade and cross drainages), shall be seamlessly integrated into the bidding documents. This allows contractors to incorporate these mitigation expenses into their bids for the respective road rehabilitation activities. It is noteworthy that the intervention packages are divided into different lots. As a result, the total mitigation cost per intervention will be distributed proportionately across each lot, based on the specific mitigations required for roads within the lots as outlined in the ESMP tables above. Each contractor will be responsible for their assigned lot and should incorporate the specific mitigation costs into their bidding documents accordingly. Table 41 below provides details of the ESMP mitigation cost for the proposed intervention works according to lots.

Intervention Packages	Lots	ESMP Mitigation Cos	t	
		NGN	USD	
Upgrades	Lot 1	4,399,330	3,125	
	Lot 2	4,283,170	3,042	
	Lot 3	5,784,098	4,108	
	Lot 4	4,399,330	3,125	
	Lot 5	4,450,018	3,161	
Total ESMP – Contractors' Mitigation Cost for	Backlog Maintenance	23,315,946	16,560	
Spot Improvement	Lot 1	4,163,490	2,957	
	Lot 2	4,619,338	3,281	
	Lot 3	4,308,170	3,060	
Total ESMP – Contractors' Mitigation Cost for	Spot Improvement	27,717,060	19,685	
Grand Total ESMP Mitigation Cost (all Intervention Packages)66,816,82247,455				

Table 41: Summary of ESMP Mitigation Cost for the Work Packages Per Lots.

<u>Note:</u> The breakdown above provides details of mitigation costs according to Lots for Contractors exclusively and does not represent the total ESMP mitigation cost. It is noteworthy that additional mitigation measures have been assigned to other stakeholders (including but not limited to the GRC, SPIU, Communication Specialist, GBV Specialist, etc.) in the ESMP table.

7.2 Labour Influx and Gender Based Violence

This section addresses critical social impacts that demand significant attention and prioritization during project implementation. It is noteworthy that while these impacts are emphasized, it does not diminish the importance of addressing other social impacts discussed in preceding sections. The primary focus in this context revolves around labour migration, gender-based violence, and the effects of STDs/STIs, as detailed below.

Labour Influx:

During project implementation, the influx of construction workers and associated camp followers or business opportunists in the project area may pose social risks such as workers engaging in sexual relations with minors and resulting pregnancies, the presence of sex workers in project communities, the spread of HIV/AIDS, sexual harassment of female employees, child labour and abuse, increased school drop-out rates, poor community participation, poor labour practices, and road safety concerns. These risks necessitate an action plan to enhance the social sustainability of the project and promote resilience and social cohesion in affected communities.

To adequately protect project communities from the aforementioned vices, the SPIU should ensure the implementation of the following additional mitigation measures:

- Assessing the living conditions of workers' camps and ensuring appropriate standards are met.
- Establishing proper agreements with host communities regarding equipment staging areas.
- Implementing and enforcing a mandatory Code of Conduct for contractors, managers, and workers, as well as an Action Plan for implementation.
- Ensuring appropriate locations for labour camps.
- Implementing countermeasures outlined in the ESMP to reduce the impact of labour influx on public services.
- Devising and implementing a strategy to maximize employment opportunities for the local population, including women.

Gender Based Violence: GBV risks in the project areas might include Intimate Partner Violence (IPV), public harassment including verbal insults, physical abuse, rape, harmful widowhood practices, women and child trafficking, etc. Development and implementation of specific GBV risk prevention and mitigation strategies, tailored to local contexts, will be critical. Therefore, SPIU will include in the bidding documents ('pre-qualification' and 'employers' requirements') key principles and specific requirements to address GBV so as to reduce and mitigate the risks of GBV especially during project implementation. In 2020, a **GBV risk assessment** was conducted for RAAMP, particularly focusing on SEA, resulting in a 'High' assessment. This evaluation utilized the World Bank's GBV risk assessment tool, supplemented by an analysis of available information from GBV portfolio reviews, stakeholder input, and project scope considerations. Nigeria has enacted legislation addressing violence against persons, including the Violence against Persons (Prohibition) Act 2015, domesticated and signed into law by the Akwa Ibom State government in July 2021. Additionally, Nigeria developed a National Action Plan for implementing UN Resolution 1325 in 2015. RAAMP has designed mitigation and response measures in collaboration with the World Bank, guided by the assessed risk level and recommendations from the Good Practice Note Addressing Gender-Based Violence in Investment Project Financing Involving Major Civil Works. These measures include a GBV Action Plan and GBV Accountability and Response Framework to be adopted by all project participating states.

In response to potential labour influx-related risks, Akwa Ibom State RAAMP will implement concrete measures, including:

- Engagement of a GBV Officer at the SPIU level.
- Inclusion of a GBV specialist in the supervision consultant team.
- Adoption and implementation of the Mapping of GBV service providers and referral pathways conducted by the FPMU.
- Engagement of a GBV Intermediary to handle GBV-related cases.



- Community and contractor workers' sensitization on preventing SEA/SH and awareness of reporting mechanisms.
- Establishment and enforcement of a mandatory Code of Conduct on SEA/SH and an Action Plan for implementation.
- Development and implementation of a GBV-GRM protocol.
- Assessment and improvement of workers' camp living conditions, ensuring separate toilets for male and female workers.
- Collaboration with the FPMU to provide Third-Party Monitors (TPM) for the project.
- Adherence to the GBV Action Plan Accountability & Response Framework.

The Supervision Consultant GBV Specialist will monitor contractor performance and adherence to labour influx guidelines and SEA obligations, with protocols for incident reporting. The SPIU will conduct periodic monitoring to ensure compliance with the C-ESMP, safeguard instruments, GBV Action Plan, and other relevant preventive contractual provisions. Quarterly inspections will include the Supervising Engineer, Supervising Engineer's GBV specialist, and SPIU GBV officer.

7.3 Institutional Roles and Responsibilities for ESMP Mitigation and

Monitoring

The successful implementation and effectiveness of the mitigation and monitoring program will depend on the commitment and capacity of the AKS-RAAMP SPIU and other relevant third-party institutions to carryout project implementation effectively. Table 42 outlines the roles and responsibilities of all parties involved in implementing, monitoring, and reviewing this ESMP.

Table 42: Institutional Roles and Responsibilities for ESMP Mitigation and Monitoring.

S/N	Category	Roles & Responsibilities
	Akwa Ibom RAAMP SPIU	 Overall responsibility for the implementation and monitoring of the implementation of the ESMP; Monitoring of project/contractor performance and taking appropriate action to ensure ESMP provisions are met. Inclusion of relevant provisions in the bidding document for contractors. Safeguards due diligence Implementation of request for environmental and social protection.
	Akwa Ibom State RAAMP SPIU Safeguards Unit	 Environmental Safeguards Analyse and monitor potential environmental impacts; Ensure that project activities that are implemented are in accordance with best practices and guidelines Identify and liaise with all stakeholders involved in environment related issues in the project; and be responsible for the overall monitoring of mitigation measures and the impacts of the project during implementation. The review and approval of draft ESMP report. Disclosure of the ESMP report at the designated locations within Akwa Ibom State. Social Safeguards Develop, coordinate and monitor the implementation of the social aspects of the proposed project. Identify and liaise with all stakeholders involved in social related issues during the proposed road rehabilitation; Ensure that project activities that are implemented will be in accordance with best practices and guidelines Review of ESMP report GBV Officer Plan and implement all GBV related activities for the project Ensure that GBV mitigation and response measures are in place & working correctly. Development of GBV Grievance Redress Mechanism Support the SPIU, in the identification, mitigation and management of the sexual exploitation and abuse (CEA), and other forms of GBV-related risks identified in the projects. Ensure that all measures outlined in the GBV Action Plans are implemented for all SPIU programmes.
	E&S Consultant	 Development of ESMP Training of relevant SPIU/RAAMP staff, regulators, MDAs and contractor on ESMP implementation and monitoring.
	Federal Ministry of Environment	 Lead role – in the review and approval of draft ESMP report Disclosure of the ESMP report at the FMEnv designated display centers
	FPMU Safeguards Unit (E&S Officers, GBV Specialist, TAs E&S)	 Provide guidance to the SPIU on E&S compliance Review of the ESMP and other safeguard instruments to ensure it complies with the WB requirements and the Nigerian EIA Act Periodic oversight/monitoring and supervision of the ESMP/RAP/GBV activities implementation Review of monthly safeguards reports and other reports on safeguards activities. Provision of safeguards training to the SPIU and contractors
	Akwa Ibom State Ministry of Environment and Petroleum Resources	 Assist with the disclosure of the ESMP report at the designated locations within Akwa Ibom State. Monitoring the implementation of the ESMP
	Akwa Ibom State Environmental Protection & Waste Management Agency	 Oversee the collection/evacuation of waste from the project site Ensure management of project waste in line with best environmental practices as not to degrade or pollute the environment. Conduct periodic monitoring of environmental parameters to ensure compliance with environmental regulations

S/N	Category	Roles & Responsibilities
	Akwa Ibom State Ministry of Women Affairs	 Advise the State government on gender and children's issues and issues affecting persons with disabilities and elderlies (vulnerable)
	Akwa Ibom State Ministry of Works and Fire Service	Continuous routine maintenance of upgraded road
	FRSC, Traffic Control Team	 Control and manage traffic and road safety throughout project implementation Ensure route diversions are seamless and direct road users appropriately Discourage counter road safety practices among road users
	Other relevant State Government MDAs	 Relevant areas or resources under their jurisdiction or management are likely to be affected or implicated by the proposed project. Participate in the EA processes and in project decision-making that helps prevent or minimize environmental and social impacts and to mitigate them.
	All 23 Local Government Areas (LGAs) of Interventions	 Provide oversight function across the project area for ESMP compliance. Liaising with the SPIU, engage and encourage carrying out comprehensive and practical awareness campaign for the proposed project amongst the various relevant grass roots interest groups
	Project Host Communities	 Promote environmental and social awareness Project Support amongst the various relevant grass roots interest groups.
	Grievance Redress Committee (GRC)	 Provision of directives and guidance in monitoring effective handling of grievance as it relates to the AKS-RAAMP intervention works.
	Community Leadership, Traditional Rulers, etc.	 Develop, coordinate and ensure the implementation of the social aspects of the ESMP Provision of oversight function across project within its jurisdiction for ESMP compliance. Promote environmental awareness. Provide comments, advice and/or complaints on issues of non-conformity. Attend public meetings organized by the SPIU to disseminate information and receive feedback.
	Contractor	 Compliance to BOQ specification in procurement of material and construction Follow the ESMP and provisions of other management plans during project implementation Establish and maintain communication with project host communities through a Community Liaison Officer (CLO). Prepare and implement the Contractor's ESMP (C-ESMP)
	Site Engineers/ Supervisors	 Provide oversight function during site mobilization, construction and demobilization Supervise and assist with the selection of suitable sites for labour camps and staging areas in collaboration with the E&S safeguards officers.
	Supervising Consultant (Environmental and Social)	 Prepare and implement environmental monitoring plan during construction Supervise contractor performance of implementation of the Construction Campsite/Staging area Camp Management Plan/C-ESMP Report any incidents or non-compliance with the C-ESMP to the E&S Safeguards Unit of the SPIU Ensure adequate training and education of all staff involved in environmental and social safeguard supervision including training on CoC understanding Prepare monthly safeguards report including recommendations to the AKS-RAAMP regarding ESMP performance as part of an overall commitment to continuous improvement
	Grievance Redress Committee (GRC)	Provision of directives and guidance in monitoring effective and timely handling of grievance as it relates to the AKS-RAAMP project
	NGOs/CSOs	 Assisting in their respective ways to ensure effective response actions, conducting scientific researches alongside government groups to evolve and devise sustainable environmental strategies and techniques. Overall monitoring of ESMP implementation and its impact in the communities. Conduct sensitizations and awareness campaigns, etc.
S/N	Category	Roles & Responsibilities
-----	-----------------------	--
	World Bank	 Overall supervision and provision of technical support and guidance. Recommend additional measures for strengthening the management framework and implementation performance. Review of monthly/quarterly reports on ESMP implementation and monitoring Conduct implementation support missions, technical oversight and monitoring to ensure overall safeguards compliance
	Others/General Public	 Identify issues that could derail the project and support project risks & impacts and mitigation measures, awareness campaigns.

7.4 Capacity Building

The AKS-RAAMP PIU possesses the technical expertise needed to design, implement, and oversee its interventions. However, for this ESMP, it is recommended that the SPIU undergo training to enhance its capacity in environmental assessment, implementation, and monitoring. Training is crucial to ensure the efficient and effective implementation of ESMP provisions. Therefore, the SPIU must ensure that all parties involved in ESMP implementation (section 6.2) are competent, with appropriate education, training, or experience. Likewise, contractors must provide general OHS training for their project workforce, along with specific training for those whose work may significantly impact the environment. This ensures that workers are fully aware of ESMP requirements and can fulfil their roles effectively. To a minimum, contractors must provide the following training to their workers:

- OHS/Health Safety and Environment (HSE) Induction/Orientation course for all workers to include (site safety rules, PPE requirements, Emergency Preparedness and Response);
- Fire and Life Safety (fire prevention, fire safety regulations, emergency procedures, fire safety equipment, electrical safety).
- Daily tool box talks for workers at the start of each day's job;
- Refresher courses on E&S safeguards as at when required.
- Manual Handling Techniques
- First Aid Training (for Site First Aiders)
- Safe Driving Techniques (for drivers)

Based on the assessment of the institutional capacities of the various agencies involved in implementing the ESMP, specific areas outlined in Table 43 have been identified for capacity building. This includes training costs to ensure effective implementation and monitoring of the ESMP.

Training Description	Participants	Duration	Responsibility	Training Cost	
				(*)	(\$)
ESMP mitigation measures and procedures for implementation	Contractors	1 day	Independent E&S Consultant/ SPIU E&S TAs	499,840	355
Monitoring and Evaluation Basics - Establishing Monitoring Indicators and Evaluating Performance; Environmental and Social Health and Safety (ESHS) Performance Monitoring	SPIUs; Safeguards Unit, M&E Officer; Supervisory Consultants.	1 day	Independent E&S Consultant/ FPMU E&S TAs	750,464	533
Training on Code of Conduct, Labour Influx, OHS Management, Fire and Life Safety, C-ESMP, Onsite Waste Management, GRM, GBV-GRM, Stakeholder Engagement	SPIU, Supervising Consultants, Contractors, GRCs, other relevant institutions stated in the ESMP, etc.	3 days during preconstruction and refresher training quarterly	Independent E&S Consultant/ FPMU E&S TAs	3,500,288	2486
Training of Contractor Drivers and SPIU Drivers Awareness for communities especially children on road use safety practices	SPIU, Contractor drivers, Supervising Consultants, Traffic Control Team	1 day during pre- construction. 1 day during construction phase	FRSC	499,840	355
Awareness campaign on preventing STI/sexual diseases	Contractor workers, SPIU Officers, SC	1 day during pre- construction. 1 day during construction phase	Healthcare workers	1,199,616	852
SH/SEA and VAC Awareness and Application to the rehabilitation works – orientation on acceptable behaviours for construction personnel on/off-site. GBV prevention, mitigation and response	SPIU, Supervising Consultants, Contractors	2 days	FPMU GBV Specialist	950,400	675
Total	Cost for Capacity Buildin	g for ESMP Implementa	tion and Monitoring	7,400,448	5,256

Table 43: Capacity Building for ESMP Implementation and Monitoring.

The total cost for capacity building for ESMP Mitigation and Monitoring Program is estimated at, Five Thousand, Two Hundred and Fifty-Six US Dollars, only (\$5,256). This is equivalent to Seven Million, Four Hundred Thousand, Four Hundred and Forty-Eight Naira, only (NGN 7,400,448).

7.5 Measures for Non-Compliance

Provisions for addressing non-compliance will be clearly outlined in the bidding documents and contracts. In cases where the Contractor fails to fulfil ESHS obligations or contractual tasks, the Project Manager has the authority to withhold the corresponding value of pending work or obligations until satisfactory completion is confirmed. Additionally, if rectification or replacement is necessary, associated costs can be withheld until these actions are successfully carried out, as determined by the Project Manager's assessment. For repeated instances of non-compliance, the Resident Engineer overseeing supervision may consider suitable alternative actions outlined in the contract. These measures could include suggesting to the client the activation of the Performance Security.

Failure to perform includes, but is not limited to, the following:

- Non-compliance with any ESHS obligations or work described in the Works' Requirements, such as working
 outside site boundaries, excessive dust, failure to maintain public roads in a safe condition, damage to
 offsite vegetation, pollution of water courses from oils or sedimentation, land contamination (e.g., from oils,
 human waste), damage to archaeology or cultural heritage features, and air pollution resulting from
 unauthorized and/or inefficient combustion.
- Failure to regularly review and update the C-ESMP in a timely manner to address emerging ESHS issues or anticipated risks and impacts.
- Failure to implement the C-ESMP, including the provision of required training or sensitization.
- Undertaking Works or related activities without appropriate consents/permits.
- Failure to submit ESHS reports or submit them in a timely manner.
- Failure to implement remediation as instructed by the Engineer within the specified timeframe to address non-compliance.
- A written notification from the resident engineer 10 days after the agreed date for the submission of monthly environmental reports if no written explanation is submitted by the environmental officer of the contractor.
- Failure to submit a declaration of methods for operations that require it, resulting in the immediate suspension of activities by the Resident Engineer until the document is approved.
- Financial penalties imposed on the employer if workers at the workplace do not have their personal protective equipment (e.g., gloves, jackets, boots).
- Contractors penalized with a written notice if they do not comply with the approved methodology for the work. In case of recurrence, the Resident Engineer may take further appropriate measures as outlined in the contract, including advising the client to call the Performance Security.

7.6 Monitoring and Reporting

The monitoring plan (Internal and External Monitoring) for the ESMP is presented in the Table 44 below. Monitoring results shall be documented with preventive/corrective actions to be implemented.

Table 44: Monitoring Procedures.

Monitoring	Action	Responsibility	When	Frequency	Deliverables
Internal Monitoring	Regular site visit (to ensure that the mitigation measures and actions specified in the monitoring plan and as bound by the contract is satisfactorily implemented).	SPIU Environmental and Social Safeguard Officers FPMU Safeguards Unit	D u r i n g Preconstruction, Construction and Operation Phase	SPIU – Weekly F P M U - Quarterly	Monitoring Reports and documentation
	Site visit for monitoring and inspection to ensure Contractors adhere strictly to the engineering designs and specifications for the project	Supervision Consultants	During Construction Phase	Daily	Observations and Monitoring Reports to be compiled and presented to the SPIU
External Monitoring	Regular site visits to ensure project is implemented in an environmentally and socially sustainable manner using the monitoring indicators specified in the monitoring plan and other national and international environmental guidelines/laws	FMEnv, AKSMEPR, AKSEPWMA, FRSC, NGOs/ CBOs, etc.	During the preconstruction, construction and operation phases.	Bi-Annually	Inspect monitoring reports from safeguard units and provide feedback and enforce corrective actions where required.

Reporting Procedures

The reporting procedures presented in Table 45 below, have been developed in order to ensure that the AKS-RAAMP PIU are able to receive feedback from the implementation of the ESMP on an ongoing basis and to take rapid corrective actions if there are issues of non-conformance.

Phase	Responsibilities	Deliverables	Accountability
Rehabilitation	SPIU Safeguard Unit	Two (2) monitoring Reports First to be prepared mid-way into the civil works and the other upon completion of all construction activities.	SPIU, FMEnv on request
		Additional Reports according to specific conditions e.g., Incidents/Accidents, serious environmental/ social risks & impacts.	
	Contractors	Report on Environmental and Social compliance during civil works	SPIUs, Supervisory Consultants.
Completion of construction and demobilization of Contractors from site	SPIU Safeguards Units	Final Monitoring Report including all monitoring activities throughout project implementation	SPIU, FPMU, Report to be archived and made available to the World Bank, & FMEnv on request

Table 45: Reporting Procedures

Record Keeping and Control

The Contractors are required to keep records providing evidence of ongoing mitigation activities. Such records may include C-ESMPs, site monitoring plan, OHS Policy, site specific OHS plan, emergency response and preparedness procedures, waste inventory and management procedures (type, quantity, transportation and final disposal), site instructions, training records, complaints records, incident report, inspection, maintenance and equipment calibration records. These documents should be made available to the SPIU Safeguards Unit upon request. The SPIU

Safeguard Unit is also required to keep records to provide evidence of monitoring activities and effectiveness of the monitoring plan. The site monitoring plan, identified problems/corrective actions and monitoring reports are to be kept by the Safeguard Unit and be made available to relevant regulators upon request. In addition, all significant communications with FMEnv, the AKSEPWMA and other relevant authorities should be documented and kept. These documents are required to track performance to achieve and demonstrate compliance with the monitoring plan and applicable regulatory requirements.

7.7 ESMP Implementation Schedule

The activities related to environmental and social management and monitoring have to be integrated in the overall construction schedule. The project implementation phase for the rehabilitations under the IDEAS project will be completed in eighteen (18) months period. The implementation schedule is presented in Table 46 below.

No.	Activity Description	Responsibility	Prior to Contract	Pre- Rehabilitation	Rehabilitation	Operation
			Award	2-Months	16-Months	Post-18 Months
1	Clearance & Disclosure of ESMP	SPIU	\checkmark			
2	Finalization of Engineering Designs	SPIU/Engineering Design Consultant	\checkmark			
3	Inclusion of Environmental & Social Requirements in Bid Documents	SPIU/Safeguards Unit	\checkmark			
4	Review and Approval of Contractor's ESMP, Waste & Safety Plan	SPIU Safeguards Unit	\checkmark			
5	Capacity building	FPMU/SPIU		\checkmark		
6	Mobilization to site	Contractor		\checkmark		
7	Implementation of Mitigation Measures	Contractor, GRC, SPIU, Comm. Specialist, GBV Specialist, etc.		\checkmark	V	V
8	Supervising ESMP Implementation	SPIU Safeguards Unit and Supervisory Consultant		V	V	N
9	Monitoring & Reporting on ESMP Implementation	SPIU Safeguards Unit/Supervisory Consultant/Relevant MDAs		\checkmark	V	V
10	Environmental and Social Training	FPMU, Independent E&S Consultant	√	\checkmark	√	
11	Environmental and Social Monitoring and Auditing	SPIU, FPMU and Independent E&S Consultant			\checkmark	√

Table 46: Tentative ESMP Implementation Schedule.

7.8 Contractual Measures

Most of the mitigation measures are the obligation of the Contractors during all phases of the project. Consequently, the Contractors will have to prepare their proposals considering the measures as well as the detailed general environmental and social management conditions during civil works. Table 47 below presents the Contractual Measures.

Table 47: Contractual Measures

Action	Remarks
The measures as described in this ESMP shall be included in the tender documents with appropriate flexibility to adjust these measures to site circumstances, and that the potential contractor will have to propose their	The non-inclusion of these measures in the proposal will lead to a disqualification of the proponent;
proposals taking into account these measures	The contract with the successful bidder should contain these environmental and social management measures as firm conditions to be complied with.
Specifically, the measures should be translated into a suite of environmental and social specifications that are written in the same language style and format as the rest of the contract document	This approach will ensure that the environmental and social controls integrate seamlessly into the tender documents and are presented in a familiar form to the Contractors
Cost of applicable mitigation measures only be added to the cost of the contract document as provisional sum (See Table 48 for Summary of ESMP Mitigation Cost for the Intervention Works Per Lots.)	The Contractor must consider and put the cost for the applicable environmental and social mitigation requirements specified in the ESMP.
Code of Conduct – Preventing GBV and Violence Against Child (VAC): A Code of Conduct should be prepared by the Contractor and signed; and forms part of the engagement agreement. To a minimum, the Code of Conduct should address: Standards of Conduct such as (a) Conflicts of interest (b) Quality of products and services, (c) Health and Safety- reporting injuries and unsafe conditions (d) Workplace violence, labour and human rights, ethics, reporting violations, (e) Sex with any person under 18 is prohibited, etc.	The Code of Conduct indicates the Contractors' commitment to be of best behaviour and comply professionally with the requirements of its engagement and Bank's safeguards.
Individual Code of Conduct Preventing SH/SEA and Violence Against Child (VAC): To a minimum, the individual code of conduct should spell out acceptable behaviour, consequence of violation, the routes for resolution of conflicts in any instance where personal interests conflict general interests regarding to the project work, outside work conduct, due diligence in providing required services, individual commitment to sustainable environmental practice during project implementation activities, etc.	The Individual Code of Conduct indicates the Contractor worker's commitment to be of best behaviour and comply professionally with the requirements of his/her engagement.
The procurement process should ensure that in addition to submission of CESMP, signing and filing of CoC, Contractors also include their employment policy based on the requirements of the Employees Compensation Act 2010 which establishes the procedure, processes and compliance to contribution to the employee compensation fund which is to be used to compensate the workers in case of injury, work-induced disability or facilities.	The project should ensure that the Contractors fulfils this requirement and are reliable especially when work related accidents/incidents, occurs so that the well-being and well-fare of the workers is taken into consideration.

7.9 Cost Estimates for ESMP Implementation

To effectively implement the mitigation and monitoring measures recommended in this ESMP, necessary provision will have to be made. The cost of these measures has been estimated and included in the ESMP and presented in Table 48 below. The cost of mitigation to be implemented by the Contractor will be included in the contract as part of the implementation cost by the Contractor. The overall total estimated cost for the ESMP implementation, monitoring and capacity building for all intervention packages is estimated at Seventy-Two Thousand, Seven Hundred and Thirty-Four US Dollars Only (**USD 72,734**). This is equivalent to One Hundred and Two Million, Four Hundred and Eight Thousand, Eight Hundred and Forty-Three Naira Only (**N102,408,843**).

ltem	Intervention Package(s)			Total Cost		
	Backlog Spot Road Cross		Cross Drainage	(A+B+C+D)		
	Maintenance (A)	Improvement (B)	rovement Upgrades Structures (B) (C) (D)		NGN	USD
Mitigation	23,743,978	28,147,328	5,274,368	11,365,512	68,531,186	48,673
Monitoring	5,254,656	5,405,312	4,729,472	3,066,624	18,456,064	13,108
	Capacity Building				7,400,448	5,256
			Sub-Total ESMP In	plementation Cost	94,387,698	67,037
	C	Contingency (5% of	Sub-Total ESMP Im	plementation Cost)	4,719,384.9	3,351.85
	GRM Implementation Cost				1,500,928	1,066
ESMP Disclosure				1,800,832	1,279	
	Grand Total ESMP Implementation Cost				102,408,843	72,734

Table 48: Overall ESMP Cost Estimate for the Intervention Works.

Note: All conversions were done using the Central Bank of Nigeria (CBN) current exchange rate of 1USD = 1,408 NGN at April, 2024.

7.10 ESMP Disclosure

Following the ESMP clearance by the World Bank, the SPIU shall disclose the ESMP in line with the Nigerian EIA laws for 21 days. This will include a formal registration of the ESMP with the FMEnv and receipt of guidelines for the disclosure from the EA department including the locations to disclose the documents. At a minimum, the aspects to be followed through for the ESMP disclosure is provided in the table 49 below.

Table 49: ESMP Disclosure

No	Action	Remarks	Cost (NGN)
1.	Registration of the ESMP at the FMEnv	Based on fixed statutory fees by the FMEnv	N 50,000.00
2.	In-house technical review	Based on fixed statutory fees by the FMEnv	N 200,000
3.	IMM FMEnv Statutory Cost	Based on fixed statutory fees by the FMEnv	N 500,000
4.	Final Access Charges	Based on fixed statutory fees by the FMEnv	N -250,000
5.	Disclosure on 2 National Newspapers and local news paper	This entails advert in 2 newspapers (actual costs will be determined at the point of placing the advert and varies depending on the paper)	N 500,000
6.	Radio announcement of the ESMP at the state	The SPIU will conduct radio announcement that has state coverage for the ESMP, to air for 10 working days (actual cost will depend on the station)	N 150,000
7.	Printing of Hard Copies for Display Centres	N10,000 (estimate) X 15 copies	N 150,000
8.	Disclosure at the World Bank External Website	The ESMP will be disclosed according to the World Bank Disclosure OP17.50	N/A
		Total	N 1,800,000

*Actual costs will be provided at the point of disclosure.

CHAPTER SEVEN

STAKEHOLDER IDENTIFICATION AND MAPPING

6.1 Stakeholder Engagement Plan

See Table 14 below for preliminary stakeholder identification and mapping.

Table 20: Stakeholders Engagement Plan

Phase According to Consultants Work Plan	Key Stakeholder Engagement Activities	Stakeholders Identified	Level of Influence on the Project

Reconnaissance Survey	 Desktop study of project area Mapping of primary stakeholders in and around the project oactions in the 11 LGAs (especially communities likely to be influenced by proposed project activities) Initial identification of stakeholders in synergy with the AB-RAAMP PIU Safeguards Unit Introductory meetings with Community Associations, Grievance Redress Committee (GRC), and informants to explain the proposed project and importance of the ESMP, and obtain initial feedback on relevant local issues, including Gender Based Violence and opinions from vulnerable groups (Will be done extensively during baseline studies and assessments) Building trust and manage expectations 	 Direct Project Affected Persons (PAPs) Farmers (growing economic crops such as oil palm, plantain, cassava, etc.) Owners of physical structure (Buildings, fences, pavements etc.) Land owners whose lands may be used as borrow pits Stream users including fishermen, sand miners, recreational swimmers, etc. (of Ekweze Stream, lyi Obowo, Igwu River, Umudere Stream, etc.) Motorcyclists and Motorcycle/Tricycle Unions Nigerian Union of Road Transport Workers (NURTW) Marketers (Ozara Market, Adadia Market, Adadia Market, Corie Ngodo, etc.) Owners of Shrines/ Communal Sacred Grounds ("Ala Nna Umuokpu", "Akparata", "Arusi Ajala", "Egbu Egbukwa", farmland protected with charms/shrines, etc.) Staff and students of school Adiasim Ikot Ata Enin) Worshippers at Churches (Kingdom Hall of Jehovah's Witness, Methodist Church, Assemblies of God Church, etc.) Primary Health Care Centers (PHCs), etc. Utility Service Providers e.g. Enugu Electricity Distribution Company (EEDC) Bordering communities 	Own farms or structures (buildings, shrines, tomb stones, fences, electricity distribution poles and transformers, etc.) along the proposed roads to be rehabilitated, or use water from streams for fishing purposes as well as other domestic activities, etc.	
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 ✓ Detailed mapping of stakeholders and social landscape ✓ Maintain a stakeholder log/minute (meetings, key issues raised, agreed actions, and responsibility) ✓ Plan, liaise and brainstorm with the AB-RAAMP PIU on consultations, and outcomes ✓ Ensure inclusion of a formal grievance mechanism or an anaxy in the SMB Papent
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Overall, a very significant objective or outcome of the stakeholder engagement process is to obtain/or ensure a Social License to Operate (SLO). The levels of an SLO, are to achieve the following:

- 1. Acceptance: A willingness to tolerate or agree to the project by stakeholders identified in the projects area
- 2. **Approval:** Supporting and having a favourable regard for the project
- 3. Co-ownership: Self-identification with the project; being advocates and defenders

Furthermore, the stakeholder engagement process will seek to build trust and relationships between the AB-RAAMP PIU, implementing partners, contractors, consultant and all cadre of stakeholders. Importantly, by working with the AB-RAAMP PIU, the Consultant intends that at consultations the following will be achieved.

- ✓ Explaining potential E&S impacts to stakeholders, including avoidance and mitigation strategies.
- ✓ Avoidance of promises that can't or are not intended to be kept.
- ✓ Ensuring that reasonable and practical solutions proffered by stakeholders are considered and incorporated into project design and implementation.

Others include:

✓ Transparency.

Activities that benefit both the project areas and the proposed project are more likely to receive support by all concerned.

✓ Work Opportunities

Selling to PAPs activities that acknowledge and provide for opportunities for PAPs to be part of the contractor's work force (skilled and un-skilled).

✓ Security

Making PAPs realize that there will be site security and access protocols involving representatives from amongst them who can serve as "eyes and ears," and who gain requisite recognition of their local status as custodians of civic order during the pre-construction and construction phases of the project.

✓ Environmental and Social Management

Proposing activities that acknowledge and involve PAPs in the understanding and management of E&S impacts mitigation and monitoring

✓ PIU Earning of Trust

By consultations with the AB-RAAMP PIU, ensuring that its members understand that recognizing and securing social, and particularly PAPs support for the proposed project is a fundamental responsibility. The AB-RAAMP PIU will continue its operation throughout AB-RAAMP implementation long after consultancies and contractor agreements close. As a result, the AB-RAAMP PIU is expected to continue stakeholder engagement by spending time, commensurate with project risks and opportunities.

ANNEX 1: TERMS OF REFERENCE (TOR)

TERMS OF REFERENCE

ABIA STATE

RURAL ACCESS & AGRICULTURAL MARKETING PROJECT (RAAMP)

CONSULTANCY SERVICES FOR THE PREPARATION OF CONSOLIDATED ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) FOR UPGRADE (25Nos-92.78KM), SPOT IMPROVEMENT (12Nos-40km) AND RESETTLEMENT ACTION PLAN (RAP) FOR SPOT IMPROVEMENT (12Nos-40km), UPGRADE (23Nos-86.22) AND CROSS DRAINAGE STRUCTURES (9Nos-79M) UNDER PHASE 2 INTERVENTION WORKS UNDER THE ABIA STATE RAAMP.

PART A: INTRODUCTION Background and Context

- 1. The Federal Government of Nigeria (FGN) has initiated the preparation of the Rural Access and Agricultural Marketing Project (RAAMP), the successor of the Second Rural Access and Mobility Project (RAMP-2). The project will be supported with financing from the World Bank and the French Development Agency (AFD) and will be guided by the Government's Rural Travel and Transport Policy (RTTP). The lead agency for the Federal Government is the Federal Department of Rural Development (FDRD) of the Federal Ministry of Agriculture and Rural Development (FMARD). The Federal Project Management Unit (FPMU) is overseeing the project on behalf of FDRD, while the respective state government of nineteen (19) participating states will implement it. The project development objective of RAAMP is to improve rural access and agricultural marketing in selected participating states while strengthening the financing and institutional base for effective development, maintenance and management of the rural road network. The participating states are: eleven northern states (Bauchi, Gombe, Kaduna, Kano, Katsina, Kebbi, kogi, kwara, Niger, Plateau and Sokoto) and eight southern states (Abia, Akwa Ibom, Ebonyi, Ekiti, Ogun, Ondo, Osun and Oyo).
- 2. The Nigeria road network is relatively dense consisting of about 194,000 km of roads. This includes 34,000 km of federal roads, 30,000 km of state roads and 130,000 km of registered rural roads. The road density is about 0.21 km of roads per square kilometre. In spite of the relatively high road density, the rural accessibility index for Nigeria (defined as the proportion of the rural population living within 2 kilometres away from an all-weather road) is low, at only 25.5percent, leaving about 92 million rural dwellers unconnected (RAAMP PAD). Rural access is limited where the poor population is concentrated. These considerations demand the expansion and improvement of rural road network, and, also, conservation of rural road/transport assets.
- 3. Furthermore, an improved rural access will enhance the agricultural potentials and marketing opportunities for the agrarian rural communities in Nigeria and, by extension, help in the improvement of livelihoods of the rural population.

4. Out of the total project outlay of US\$575 million, the Association, the AFD and the GoN will contribute US\$280 million, US\$230 million (Euro 200 million equivalent) and US\$65 million respectively. These contributions are equivalent to 49 percent, 40 percent and 11 percent of the total cost respectively for the Association, the AFD and GoN (RAAMP PAD).

5. RAAMP has four components however this Consultancy will be focused on the following component;

Component A: Improvement of Rural Access and Trading Infrastructure – activities include the upgrading of rural roads, construction of short-span critical cross-drainage structures, physical improvement of agro-logistics centers and support to the costs of consultancies and supervision of construction activities.

Component B: Asset Management, Agro-logistics Performance Enhancement and Sector Reform-activities include support to maintenance and spot improvement of rural roads, support to Agro-logistics performance enhancement activities which include support to farms and cooperatives to reduce post-harvest losses and support to SMEs at the agro-logistics centers and provision of TA support to state level road sector reforms activities

Component C: Institutional Development, Project management and Risk Mitigation- activities include institutional development and project management and risk mitigation and resiliency.

Component D: Contingent Emergency Response, this component will address any unforeseen emergency infrastructure needs following a natural disaster.

6. Considering the nature of these works, their scope, geographic coverage and client's capacity, the following World Bank's environmental and social safeguards policies are triggered: Environmental Assessment OP/BP 4.01, Natural Habitats OP/BP 4.04, Physical Cultural Resources OP/BP 4.11 and Involuntary Resettlement OP/BP 4.12. The project has been assigned an Environmental Assessment (EA) Screening Category "B". This rating is based on the scope of the project, which indicates limited adverse environmental and social impacts. It is expected that minimal adverse negative impacts are likely during project implementation; especially as the project does not contemplate constructing new roads and will essentially remain within the existing right-of-way. At project preparation, an Environmental and Social Management Framework (ESMF) and Resettlement Policy Framework (RPF) were prepared. These safeguard instruments are frameworks that need to be translated into specific cost, measurable and monitorable actions for specific sites interventions through the preparation of site-specific management and action plans. In general, the ESMF specifies the procedures to be used for preparing, approving and implementing environmental and social assessments (ESMPs, or alternatively both EMP and SMP) for individual civil works packages developed for each project. The Resettlement Policy framework is prepared as a stand-alone document to provide guidance, and a procedure and process for preparing ARAP/RAP which may be carried out when the subcomponents' locations are known and more detailed information on subcomponents become available.

BRIEF INFORMATION ON THE PROJECT AREA

7. The project area is located in Abia State between latitude 5.9133 and longitude 7.7167, South Eastern Nigeria. It is bordered to the north and northeast by the states of Enugu and Ebonyi, Imo state to the west, Cross river state to the east, Akwa Ibom to the southeast and Rivers state to the south. The state has 17 LGAs with a total land area of 6,320 square kilometers. The proposed interventions will cut- across 12 out of the 17 local government areas which are; Arochukwu, Ohafia, Bende, Isuikwuato, Umunneochi, Umuahia North, Umuahia South, Isialangwa North, Isialangwa South, Obingwa, Aba North and Ugwunagbo local government areas. Majority of the local government areas are rural except Umuahia North and Aba North.

Description of Proposed Intervention

8. The Abia state RAAMP proposes to prepare an Environmental and Social Management Plan (ESMP) for 37 number roads totaling 132.78km (Upgrade 92.78km, Spot Improvement 40km) and Resettlement Action Plan (RAP) for 35 number roads totaling 126.22km and 9 number river crossings totaling 79m (upgrade 86.22km, Spot Improvement 40km, Cross Drainage 79m) under the phase 2 work package. The work package would involve engineering works such as, but not limited to, the following:

Spot Improvement and Upgrade Works Packages

- Site clearance
- Earthworks (i.e. removal of unsuitable material and filling of lateritic material)
- Re-sealing / overlay of cracks and eroded carriageway sections
- Potholes patching
- Pavement works (i.e. construction of sub-base and base courses, priming, and thin asphalting).
- Improvement / provision of culverts/ drains /slopes/embankments/other structures.
- Complete or slight resurfacing
- Widening of shoulders of the existing road.
- Miscellaneous works (i.e. provision of road markings, signs and other infrastructure).

Cross Drainage Intervention Work Package

- Site clearance
- Breaking of ground and installation of cross drainage foundation (Installation of pillars)
- Installation of piers and cross drainage support
- Installation of superstructures (support beams and latticework)
- Installation of crossing bars
- Miscellaneous works (i.e. signs and other infrastructure).

9. These activities have the potential to generate environmental and social impacts including noise and dust generation; delay in travel time due to traffic obstruction, accident risks to road users, potential pollution to water resources from poor waste management, community health & safety risks such as accidents/spread of STDs, risks of GBV/SEA/SH, disruption of social amenities like electric power poles etc.

10. In line with the RAAMP ESMF, an Environmental and Social Screening was conducted in March 2024 to ascertain the eligibility of the roads based on the environmental and social sensitivities, and the need for preparation of any site-specific instrument or otherwise. The screening identified the need to prepare an Environmental and Social Management Plan (ESMP) and Resettlement Action Plan (RAP) to adequately address the site-specific impacts envisaged due to the project activities.

11. Against this backdrop, Abia state RAAMP is desirous to engage the services of a consulting firm to prepare an Environmental and Social Management Plan (ESMP) for 132.78km phase 2 roads (92.78km upgrade and 40km spot improvement roads and Resettlement Action Plan for 126.22km roads (86.22km upgrade roads and 40km Spot Improvement roads) and 79m cross drainage structures prior to the commencement of the civil works (list of selected roads and river crossings is provided in Annex 2 and 4). QUALIFICATION OF CONSULTANT

- The ESMP and RAP will be prepared by a firm consultant.
- The firm consultant must have a working knowledge of World Bank Operational safeguards policies gained through hands-on experience in the preparation and implementation of environmental and social management plans and Resettlement Action Plan in an urban/rural area.
- The lead consultant personnel must have at least a master's degree in environmental sciences, natural sciences, environmental management, social sciences or similar field
- The firm must have a minimum of 6 years' work experience in civil works contracts requiring Environmental management procedures including mitigation measures
- Proven skill in World Bank (WB) Environmental and Social safeguard policy implementation including addressing cross-cutting issues in development project and must have prepared at least three (3) ESMPs and RAPs for three different World Bank funded projects.
- Qualified staff with experience in social safeguards/socioeconomics, occupational Health, SEA/GBV and Safety/HSE and relevant certification
- Excellent communication and report writing skills

CONDUCT OF THE CONSULTING FIRM

• The firm consultant will at all times be expected to carry out the assignment with the highest degree of professionalism and integrity. The Consultant will be expected to conduct his duties in an open and transparent manner.

- The Consultant will not under any circumstance, take any actions or be seen to be taking any actions which may hinder or prevent the Abia State RAAMP from executing this assignment.
- The Consultant will study all Abia State RAAMP guidelines and policies, and will be expected to ensure that the assignment is concluded with the strictest adherence to all such policies and regulations.
- The Consultant will not under any circumstances take any material decision pertinent to this assignment without the express permission and written consent to the Project Coordinator or any authorized representative of Abia RAAMP SPIU.
- The Consultant will not in any circumstances, discuss, divulge, or use any information regarding this assignment or any other transaction conducted without the express written permission of an authorized representative of Abia RAAMP.
- The Consultant shall declare all ongoing consultancy assignments with other clients for the SPIU assessment to mitigate for conflict of interest in delivering on the assignment.
- The Consultant must avoid all potential conflict of interest situations.

STAFF REQUIREMENT

12. The consulting firm is expected to have the following staff on the team for preparation of the ESMP with the following minimum requirement:

- 1. Lead Consultant (Environmental and Social Management Specialist) MSc in Environmental Management Fields or similar qualification: At least 8 years' working experience, 5 years specific experience in the preparation of environmental and social assessment reports (ESIAs/ESMPs). Participation in similar role in at least three World Bank funded projects in the last 5 years.
- 2. **Co-Lead Consultant** (Social Scientist/Stakeholders Engagement Specialist) MSc in Sociology or similar qualification: At least 8 years' working experience, 5 years specific experience in the preparation of environmental and social assessment reports (ARAPs/RAPs). Participation in similar role in at least three World Bank funded assignments in the last 5 years.
- 3. Environmental Scientist: Advance degree in environmental sciences or a similar discipline At least 5 years working experience with specific experience in the preparation of ESIA/ESMP reports. Participation in similar role in at three World Bank funded projects in the last 3 years.
- 4. **Social Expert**: Advance degree in Sociology or related discipline. -at least 5 years work experience with specific experience in similar assignment. Participation in similar role in at least three World Bank funded projects in the last 3 years.
- 5. **HSE Expert**: Advance degree in Environmental sciences, Engineering or similar discipline. -HSE certification. -at least 5 years work experience with specific experience in similar assignment. Participation in similar role in at least three World Bank funded projects in the last 3 years.
- 6. **Economist**: Advance degree in economics or related discipline. -at least 5 years work experience with specific experience in similar assignment. Participation in similar role in at least three World Bank funded projects in the last 3 years
- 7. **Design Engineer**: Degree in engineering, at least 5 years work experience in with specific experience in civil works/road construction projects. Participation in similar role in at least three World Bank funded projects in the last 3 years.
- 8. **Mapping/GIS Specialist** BSc. GIS/Remote Sensing or other related courses, at least 5 years working experience with specific experience in similar assignment Participation in similar role in at three

World Bank funded projects in the last 3 years – Evidence of familiarity with GIS, Arc Info, AutoCAD and other Geo Spatial Design Software.

- 9. **Communication/Consultation Specialist:** Degree in Social Science/Mass Communication or related discipline: At least 5 years working experience with specific experience in similar assignment. Participation in similar role in at least three World Bank funded projects in the last 3 years.
- 10. Gender Based Violence (GBV) Specialist: BSc Sociology or related discipline, at least 5 years work experience with specific experience in similar assignment. Participation in similar role in at least three World Bank funded projects in the last 3 years.

13. The Consultant team will be required to arrange its own transport; logistics and equipment (e.g. provide its own computers, printers, and office supplies). All information, data and reports shall be treated as confidential.

DELIVERABLES AND TIMIMG

14. The Consultancy will have to submit the following deliverables as per the mentioned timing:

- Inception Report: This report shall include a detailed work plan. This will be discussed by the consultant, client and other experts to ensure quality of the final outcome at the scoping stage. The inception report shall integrate results from the review by the Client and from the consultation of all stakeholders. Two (2) copies shall be submitted to Abia SPIU. In addition, there shall be an electronic version. This will be delivered within one week after contract signing; 2 hard copies and 1 soft (electronic) copy.
- **Draft Report:** A Stand-alone draft ESMP and RAP Reports shall be submitted for comments in 4 weeks from the date of signing the contract. It will identify all the areas, the mitigation measures, and the environmental and social issues associated with the intervention sub-projects, as well as the adequacy of the monitoring and institutional arrangements in the intervention sites. Two (2) copies of the draft ESMP and two (2) copies of the draft RAP as well as 1 electronic copy each shall be submitted to Abia SPIU.
- **Final Report**: A Stand-alone Final ESMP and RAP Reports taking into account all comments from the SPIU, FPMU and World Bank (cleared ESMP and RAP) will be submitted to the SPIU within eight (8) weeks from the date of signing the contract. In addition, it shall include concise Executive Summary and shall have all annexes, maps, diagrams, bibliography and the disclosure plan. Four (4) copies of the final ESMP and four (4) copies of the final RAP as well as 1 electronic copy each shall be submitted to SPIU via email.

PROJECT SPECIFIC BACKGROUND DOCUMENT

- a. Environmental and Social Management Framework (ESMF).
- b. Resettlement Policy Framework (RPF).
- c. RAAMP Project Appraisal Document (PAD).
- d. RAAMP Project Implementation Manual (PIM).
- e. Civil work design report.
- f. Environmental and Social Screening Report for the selected roads and cross drainage structures.

duration

The duration of the assignment shall not exceed a period of eight (8) Weeks.

PART B: ANNEXURES

ANNEX 1: ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN (ESMP) Objectives

The specific objective of the ESMP will be to assess the potential environmental and social impacts of the proposed works for the thirty-four (37) roads totaling 132.78km (upgrade 92.78km and Spot Improvement 40km) under Abia RAAMP phase 2 works as described in the detailed preliminary designs and prepare a detailed Environmental and Social Management Plan (ESMP) and develop appropriate mitigation measures to address the negative impacts. The ESMP will also outline mitigation costs & responsibilities, and a monitoring plan which will include monitoring parameters, frequency, responsibility and costs. The ESMP will advise any required updates to the engineering design based on impacts reduction strategies and mitigation measures, prior to finalization of the engineering design. Furthermore, the costs for mitigation of the ESMP which is due to the contractor will be embedded in Bill 1 of the standard bidding documents for contractors to enable adequate consideration and costing for E&S management in their bids. The ESMP will be prepared in compliance with the Nigerian EIA Act, the World Bank Operational Safeguards policies triggered by this project and the RAAMP ESMF.

The assignment is for the preparation of site specific ESMP for the selected roads for phase two (2) upgrade and Spot improvement intervention that should consist of a well-documented set of mitigation measures, monitoring, and institutional actions to be taken before and during implementation to eliminate adverse environmental and social impacts, offset or reduce them to acceptable levels. It should also include the measures required to implement these actions, costing, and responsibility, addressing the adequacy of the monitoring and institutional arrangements in the intervention sites.

The ESMP consultant will work in close collaboration with the engineering design consultants and Abia state RAAMP State Project Implementation Unit's (SPIU) safeguard team, and with other actors as directed by the SPIU. In that respect the sequencing of the technical/feasibility studies and the ESMP will be critical. The ESMP consultant will have to consider the technical variants of the proposed activities and also in return inform the technical design consultants of any major constraint that may arise to the social and environmental situation on ground.

The specific task for the consultancy assignment shall include but not limited to the following:

- a) Review the existing PAD, ESMF and RPF prepared for the project;
- b) Review of the Project's PIM and Road Intervention Catalogue;
- c) Review Environmental and Social Safeguards policies of the World Bank triggered on the project;
- d) Review of preliminary engineering designs and technical /feasibility studies for the proposed project locations;
- e) Describe the proposed project by providing a description of the project relevant components and presenting schematic diagrams, maps, figures and tables.
- f) As appropriate in highly sensitive sites, describe and analyse the physical, biological and human environment conditions in the study area before project implementation. This analysis shall include the interrelations between environmental and social components and the importance that the society and local populations attach to these components, in order to identify the environmental and social components of high value or presenting a particular interest.
 - The following biophysical issues shall be taken into consideration; Climate, Air Quality, erosion/flooding patterns, drainage pattern, water quality (surface and aquifer characteristics), noise level, Soil, biological aspects: flora and fauna, endemic and endangered species.
 - The biophysical section shall also include a descriptive analysis of the land use and land cover (LULC) condition.
- g) Identify the policy, legal and administrative framework relevant to the sub-projects.
- h) Define and justify the project study area for the assessment of environmental and social impacts.
- i) Assess the potential environmental and social impacts related to project activities;

- j) Define appropriate mitigation/enhancement measures to prevent, minimise, mitigate, or compensate for adverse impacts or to enhance the project environmental and social benefits, including responsibilities and associated costs.
- k) Review institutional assessment and framework for environmental and social management.
- I) Identify responsibilities and actors for the implementation of proposed mitigation measures
- m) Assess the capacity available to implement the proposed mitigation measures and identify institutional responsibilities and needs for capacity building, if necessary, to implement the recommendations of the environmental and social assessment and associated costs
- n) The following socio-economic issues shall be addressed in the ESMP:
 - Using a mixed methods approach, the study shall establish the social baseline information before project intervention. Social baseline parameters to be determined for each of the sub-project sites include;
 - Location
 - Community Organisation and Governance
 - Pattern of social networks and interaction in the project area;
 - Access/Transport preferences of residents of project communities
 - population characteristics (number, demographic, literacy levels, other social characteristics, distribution of vulnerability within population around the project sites);
 - economy (prevalent occupations, employment rate, income distribution);
 - Availability of social services (health, education)
 - public services (types, capacity, and adequacy)
 - housing type;
 - Absorptive capacity of local communities for project-induced labour influx (worker/family).
 - o Pattern of conflict and conflict resolution mechanisms in project communities
 - o Factors driving Gender-Based Violence and Sexual Exploitation & Abuse risk in project areas
 - A summary of the views of the population including vulnerable groups, determined through documented discussions with local communities.
 - Cultural: Summarize the possible effects of the project on historical/archaeological sites, heritage/ artefacts, native religious or harvest sites of the affected communities and identification or development of mechanisms for handling chance findings.
- c) Carry out consultations with primary and secondary stakeholders in order to obtain their views about the project. These consultations shall occur during the preparation of the ESMP to identify key environmental and social issues and impacts, and after completion of the draft ESMP to obtain comments from stakeholders on the proposed mitigation/enhancement measures
- p) Develop a Labor Influx, The Consultant shall also document how to manage risk related to Gender Based Violence (GBV) INCLUDING Sexual Exploitation and Abuse, and sexual harassment taken cognisance of (i) Develop a Labour Influx, (ii) Security issues, (iii) project GBV accountability and response Framework. In doing these, he/she shall develop a labour influx, SEA/SH and Occupational Health and Safety Response Plan
- q) Develop a Grievance Redress Mechanism (GRM) which will be applied on the project. A GBV-specific Grievance Mechanism will also be developed to address complaints related to forms of GBV on the project.
- r) For ESMPs to capture the socio-economic, cultural and risk context for women, they should consider:
 - Existing gender-specific statistics;
 - Data and/or information on cultural and socio-economic practices for women;
 - Information obtained from consultations carried out in the preparation of the project.
- s) Prepare an Environmental and Social Management Plan (ESMP). The ESMP should identify:
 - The potential environmental and social impacts resulting from project activities

- The proposed mitigation measures;
- The monitoring indicators;
- The institutional responsibilities for monitoring and implementation of mitigation measures;
- The costs of mitigation, monitoring activities and implementing the ESMP; and
- A calendar for implementation.

In executing the above task, the consultant shall carry out consultations with primary and secondary stakeholders in order to obtain their views about the project. These consultations shall occur during the preparation of the ESMP to identify key environmental and social issues and impacts, and after completion of the draft ESMP to obtain comments from stakeholders on the proposed mitigation/enhancement measures.

The following socio-economic issues shall be addressed in the ESMP:

- A summary of the impacted communities for the project: Location Access, Population (number, demographic and social characteristics); economy (employment rate, income distribution); services (types, capacity, and adequacy) and housing. The concern is the ability to provide workforce, service new development and absorb and adjust to growth (worker/family).
- A summary of the views of the population including vulnerable groups, determined through thoroughly documented discussions with local communities. These meetings and discussion must be documented and should show how issues and problem raised are or will be resolved (note that a Resettlement Action Plan (RAP) could be developed for the site, and this is covered under separate ToR.
- Cultural: Summarize the possible effects of the project on historical/archaeological sites, heritage/ artefacts, native religious or harvest sites of the affected communities and identification or development of mechanisms for handling chance findings.

Information will be gathered from field surveys and secondary data sources (interviews, structured questionnaires, in – depth interviews and focus group discussions).

Ethical requirements

Before undertaking any activity, the team will make sure that it understands all ethical considerations related to working GBV (in particular, Sexual Exploitation and Abuse). The consultant should not collect any primary data, they should NOT conduct interviews or research using the SEA survivors and will only make use of secondary sources and data. This is with the objective to minimize harm to women and children.²⁰

The typical contents of an ESMP Report are presented hereafter in section 1.3. It shall be noted that the presentation of the Report may be adapted pending on the nature and specific requirements of the project. Also, the ESMP mitigation and monitoring table shall be concise and explicit. This is important to enable the engineers review the report during project implementation.

Reporting outline for ESMP LIST OF TABLES LIST OF FIGURES LIST OF PLATES ABBREVIATIONS AND ACRONYMS EXECUTIVE SUMMARY CHAPTER ONE: INTRODUCTION

- Background
- Description of the proposed intervention
- Scope of the assignment
- Rationale for ESMP

²⁰ "A woman may suffer physical harm and other forms of violence if a partner finds out that she has been talking to others about her relationship with him. Because many violent partners control the actions of their girlfriends of wives, even the act of speaking to another person without his permission may trigger a beating." For more information on ethical considerations see: VAWG Resource guide, http://www.vawgresourceguide.org/ethics

Objectives of the ESMP

CHAPTER TWO: ADMINISTRATIVE & REGULATORY FRAMEWORK

- Discussion of the World Bank safeguard policies triggered by RAAMP and the proposed activity
- Summary of relevant local and federal policy, legal, regulatory, and administrative frameworks

CHAPTER THREE: PROJECT DESCRIPTION

Description of the Proposed Project, Project Component and Activities

CHAPTER FOUR: DESCRIPTION OF PROJECT ENVIRONMENT

- Description of the area of influence and environmental baseline conditions including climate, air quality, erosion/flooding patterns (vulnerability assessment), drainage pattern, water quality (surface and aquifer characteristics), soil, biological aspects: flora and fauna, endemic and endangered species.
- Analysis of socio-economic baseline conditions including livelihoods, economic opportunities, income, gender characteristics, age profile, health, transport access, existing community structures at community, household, and individual levels

CHAPTER FIVE: POTENTIAL IMPACTS AND MITIGATION

- Methods and techniques used in assessing and analyzing the environmental and social impacts of the proposed project
- Discussion of the potentially significant adverse environmental and social impacts of the proposed project
- Discuss the Climate Change Impact and its Mitigation Measures
- Labour influx
- Description of the GBV risk (including a GBV Action Plan), and more broadly the ESHS expectations, and include appropriate mitigation measures. The basis of the GBV Action Plan should be provided as part of the ESMP.²¹

CHAPTER SIX: GRIEVANCE REDRESS MECHANISM

• Description of grievance redress mechanism (in alignment with the ESMP and Project Implementation Manual) to address situations of conflicts or disagreements about some of the project activities

CHAPTER SEVEN: ENVIRONMENTAL & SOCIAL MANAGEMENT PLAN²²

- Discussion of the proposed mitigation measures
- ESMP table
- Institutional responsibilities and accountabilities
- Capacity building plan
- Climate Change Adaptation Plan
- Monitoring and evaluation plan, including suitable indicators for the proposed project
- Costs of implementing the ESMP

CHAPTER EIGHT: PUBLIC CONSULTATION

- Public consultation plan
- Presentation of consultations with relevant stakeholders and affected persons

CHAPTER NINE: CONCLUSION AND RECOMMENDATIONS

REFERENCES

APPENDIX 1: TERMS OF REFERENCE FOR THE ESMP

APPENDIX 2: SOCIO-ECONOMIC DATA COLLECTION INSTRUMENTS

APPENDIX 3: ATTENDANCE AT COMMUNITY CONSULTATIONS

APPENDIX 4: GENERAL ENVIRONMENTAL MANAGEMENT CONDITIONS FOR CONSTRUCTION CONTRACTS

²¹ The GBV Action Plan needs to include specific **arrangements** for the project by which GBV risks will be addressed. This includes considerations such as: a) Awareness Raising Strategy, which describes how workers and local communities will be sensitized to GBV risks, and the worker's responsibilities under the CoC; b) GBV Services Providers to which GBV survivors will be referred, and the services which will be available; and, c) GBV **Allegation Procedures:** How the project will provide information to employees and the community on how to report cases of GBV CoC breaches to the GRM.

²² The ESMP should take into account that designation of responsibilities between contractor and Borrower may vary on a project-specific basis, in order to improve effectiveness and efficiency in implementation and associated results. To this end, the ESMP should follow the guidance in table 5 in the Labour influx guidance note : <u>http://pubdocs.worldbank.org/en/497851495202591233/Managing-Risk-of-Adverse-impact-from-project-labor-influx.pdf</u>

APPENDIX 5: WASTE MANAGEMENT PLAN APPENDIX 6: OCCUPATIONAL HEALTH AND SAFETY (OHS) PLAN APPENDIX 7: BORROW PIT MANAGEMENT PLAN APPENDIX 8: TRAFFIC MANAGEMENT PLAN (TMP) APPENDIX 9: CODE OF CONDUCT FOR GENDER-BASED VIOLENCE APPENDIX 10: CAMPSITE MANAGEMENT PLAN APPENDIX 11: LABOUR INFLUX PLAN APPENDIX 12: COMMUNITY AFFAIRS, SAFETY, HEALTH, ENVIRONMENT AND SECURITY (CASHES) PLAN APPENDIX 13: SAMPLE CHANCE FIND PROCEDURE FOR THE PROTECTION OF PHYSICAL RESOURCES APPENDIX 14: SAMPLE OUTLINE FOR SECURITY RISK MANAGEMENT PLAN

ANNEX 2: LIST OF SELECTED ROADS FOR PHASE TWO (2) UPGRADE AND SPOT IMPROVEMENT ROADS THAT *REQUIRES ESMP*

S/N	LGA	UPGRADE ROAD NAME	LENGTH (KM)	Coordinates
1	Arochukwu	Achara-Okpo-Nkporo-Ututu	10.39km	N5.4908, E7.8850 N5.4430, E7.9092
2	Arochukwu	Umeye I - Umeye II	1.40km	N5.4757, E7.8909 N5.4761, E7.8911
3	Arochukwu	Obinto - Atani road	1.20km	N5.4563, E7.8763 N5.4560, E7.8780
4	Ohafia	Okagwe– Nkwebi – Onwuwanyanwu	4.30km	N5.6861, E7.8045 N5.6745, E7.7980
5	Bende	Sameke Junction - Amaraugboghu	2.46km	N5.7251, E7.6137 N5.7055, E7.6079
6	Umunneochi	Oba junction-Umumaduako-Umumezie	2.55km	N5.9656, E7.3864 N5.9638, E7.4078
7	Umunneochi	Orie Ngodo market-Obinohia Umudim-Lomara	5.20km	N5.9355, E7.3835 N5.9413, E7.3766
8	Isialangwa North	Amorji-Ngbedeala-Ntigha Umukalu-Mbawsi	4.45km	N5.3957, E7.3926 N5.3932, E7.3925
9	Isialangwa North	Amorji market road - Amorji junction	1.61km	N5.3825, E7.3876 N5.3826, E7.3849
10	Isialangwa North	Ogbagala junction-Amaugba	0.49km	N5.3832, E7.3769 N5.3829, E7.3781
11	Isialangwa North	Nbawsi-Agburuike-Umuomaighiukwu	5.49km	N5.3847, E7.4358 N5.4253, E7.4139
12	Obingwa	Nkwo Elechi market-Umueme Road	2.11km	N5.1534, E7.3945 N5.1503, E7.3764
13	Obingwa	Umuagu Ohuru Amaisii-Osaa Ukwu-Itungwa	9.30km	N5.1458, E7.4008 N5.1930, E7.4596
14	Obingwa	Umuariama Ahiaba Ubi-Nkwo Elechi	2.98km	N5.1720, E7.3945 N5.1633, E7.3996

15	Obingwa	Nkwo Elechi Umuagu Umuorukwu Osusu Amaukwa Road	3.85km	N5.1534, E7.3951 N5.1294, E7.4143
16	Umuahia North	Agalabano-Umuhu central school-Ekeoba	1.36km	N5.5800, E7.4446 N5.5821, E7.4473
17	Isialangwa South	Umunkpeyi-Amachi-Umuaro	2.70km	N5.3588, E7.4993 N5.2936, E7.4908
18	Isialangwa South	Nkwo Ebe-Umunko-Umuakwu	3.62km	N5.3337, E7.4794 N5.3588, E7.4993
19	Isialangwa South	Amiyi Nvosi-Ometeghi-Umuada Nvosi-Omuapu road	5.60km	N5.2948, E7.4412 N5.3203, E7.4149
20	Ugwunagbo	Asa Umunka - Umugo - Ameyi Oza - Ozata - Ugwati Asa	5.24km	N5.0377, E7.3196 N5.0402, E7.2751
21	Umuahia South	Eziama-Amaibo Ring Road	3.95km	N5.4917, E7.4378 N5.4769, E5.4917
22	Umuahia South	Agalaba Ise-Ahiamorie-Umuamadi-Amalaubi- Umuokereke	6.00km	N5.4735, E7.4448 N5.4244, E7.4424
23	Umuahia South	Apumiri-Avo-Amibo Express	1.52km	N5.4739, E7.4361 N5.4863, E7.4409
24	Umuahia South	Umuawoli Road	0.61km	N5.4983, E7.4015 N5.4943, E7.4040
25	Umuahia South	Ogbodioriloku-Umuchiche-Mbaraukwu	4.40km	N5.5357, E7.4602 N5.5487, E7.4401
		Total	92.78km	

S/N	LGA	SPOT IMPROVEMENTE ROAD NAME	LENGTH (KM)	Coordinates
1	Bende	Ozara market Junction -Amaoku Alayi-Ugwueke Road	2km	
2	Bende	Bende Etitiulo-Ubibia-Ndiwo-Itumbuzo-Okopedi- Ntalakwu	4km	N5.5596, E7.6382 N5.4460, E7.6826
3	Bende	Amaokwelu Alayi Junction-Amankalu-Akoli Imenyi	7km	N5.6810, E7.5753
4	Bende	Alayi – Ezeukwu Road	9.6	N5.7407, E7.5954 N5.8481, E7.5543
5	Bende	Ezeukwu-Ugwueke Road	4.40m	N5.1266, E7.5634 N5.2146, E7.5924
6	Umuahia North	Amaogwugwu olololo Junction-Umukabia	2.00	N5.5969, E7.4489 N5.5179, E7.4633
7	Umuahia North	Umuafiaka-Umuokpara	4.00	N5.5638, E7.4402 N5.5831, E7.4604

8	Umuahia South	Old Umuahia (Divinity School)-Osah Road	4.20	N5.4918, E7.4697
9	Umuahia South	Ahiaukwu-Amangwo-Umuajata Umudere Aamkama	4.00	N5.3683, E7.5227 N5.3881, E7.5423
10	Aba South	Umuanyaso Road	1.00	
11	Aba South	Umuegwere Road	1.00	
12	Umuahia South	Okpikpe Umuana – Ikot Ekpene Road	1.00	
,	1	Total	40km	

ANNEX 2: ATTENDANCE FOR PRELIMINARY FIELD VISITS

Consultancy Services for the Preparation of Consolidated Environmental and Social Management Plan (ESMP) for Upgrade (25Nos- 92.78KM), Spot Improvement (12Nos-40KM) and Resettlement Action Plan (PAP) for Spot Improvement (12Nos-40KM) and	Consultancy Services for the Preparation of Consolidated Environmental and 92.78KM), Spot Improvement (12Nos-40KM) and Resettlement Action Plan (RAI 85.23) and Coreo Enjangers Structures (NNos-27ML under Sharea 2 In
86.22) and Cross Drainages Structures (9Nos-79M) under Phase 2 Intervention Works under the Abia State RAAMP	
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92.7EX00, Spot Improvement (12Nos-44X00) and Resettlement Action Plan (RAP) for Spot Improvement (12Nos-44X00, Upgrade (22Nos- 86.22) and Cross Drainages Structures (Nos-780) under Phase 2 Intervention Works under the Abia State RAAMP	92.78KM), Spot Improvement (12Nos-40KM) and Resettlement Action Plan (RAH
52.7800, Spot Improvement (12Nos-4400) and Resettlement Action Plan (RAP) for Spot Improvement (12Nos-4400), Upgrade (2Nos- 68.22) and Cross Drainages Structures (Nos-784) under Phase 2 Intervention Works under the Abia State RAAMP Imm 9:54 Venue: Consultation with OK pixpe (Omm Unity)	82.78KM, Spot Improvement (2006-40KM) and Resettlement Action Plan (Rat. 86.22) and Cross Drainages Structures (9Nos-79M) under Phase 2 Int 86.22) and Cross Drainages Structures (9Nos-79M) under Phase 2 Int
22.715(A), Spot Improvement (12Nos-416A) and Resettlement Action Plan (2N) for Spot Improvement (12Nos-416A), Upgrade (2Nos- 86.22) and Cross Drainages Structures (Nos-734) under Phase 2 Intervention Works under the Abia State RAAMP The 9:54 Venue: Constitution with OK pikpe (Omm Unity) The 20 (Albu: 1202) Attendance Sheet Okford mean - Kat Efford RAA	Derived and the second and the
22.7110(1), Spot Improvement (12Nos-4100) and Resettlement Action Plan (24) for Spot Improvement (12Nos-4100), Upgrade (21Nos- 86.72) and Cross Drainages Structures (Nos-730) under Phase 2 Intervention Works under the Abia State RAALP The 9:54 Venue: Consultation with OK picker (Omm Unity Rema 720 (1001) 7.03.4 Attendance Sheet Structures (Organization) DESCHATION PROVE NO EMAIL ADDRESS DOWN	Venue: (MMU have a start of the
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22 TRON, Spot Improvement (1200-4100) and Restlement Action Plane (RAS) for Spot Improvement (1200-4100), Upgrade (2005- Bizzy and Cross Dalages Structures (Mex. 780) under Plane 2 Intervational (Tokes - Hold Under State RAMP) New Consultation with Ok pixpe (Ommunity The 20 follow (Intervation - Hold Tokes Constructures (Hex. 780) under Plane 2 Intervational (Tokes - Hold Tokes Constructures (Hex. 780) under Plane 2 Intervational (Tokes - Hold Tokes Constructures (Hex. 780) under Plane 2 Intervational (Tokes Constructures (Hex. 780) under Plane 2 Intervational (Hex. 780) under Plane 2 Int	12.78KM, Sol Improvement (1200 action to Constance Environment and B2.78KM, Sol Improvement (1200 action of Constance Environment Action Plan (Rd. B6.22) and Cross Drainages Structures (PNOs-79M) under Phase 2 in Unew (Smith hu Date 2.0 [Mith hu Date 2.0 [Mith hu Date 2.0 [Mith hu ORGANIZATION DESIGNATION PHO 1 (Mabusuko, NANTINA) village chairman b70 2 Lovingel Ourses of the Structure of Pho 3 Mrs Granice Indonesis of the Structure 5 Switch 12 Constantial of the Structure 5 Switch 12 Constantial of the Structure 6 CKR2 (E Constantial of the Structure 7 Chinant Constantial of the Structure 8 CKR2 (E Constantial of the Structure) 8 CKR2 (E Constantial of the

ANNEX 3: MINUTES OF INITIAL STAKEHOLDER CONSULTATION

Minutes of the stakeholders' engagement initiated by the ESMP Consultant with the AB-RAAMP PIU. The stakeholders' engagement commenced with a brief Introduction by the representative of the AB-RAAMP, who gave a brief overview on the RAAMP project. Afterwards, the Consultant explained the importance of the proposed ESMP and the rationale behind the consultation. He further stated that the session will be interactive as there are some information that are required to be obtained from the various representatives of AB-RAAMP PIU and Design Consultants to facilitate the preparation of the ESMP report. He further encouraged the session to not hesitate to raise questions, concerns, clarifications and suggestions as well as their general expectations from the consultancy service.

The table below shows major points discussed during the consultation.

STAKEHOLDER	QUESTIONS/CONCERNS/SUGGESTIONS	RESPONSE
AB-RAAMP Project Coordinator	Welcomed the Consultant team on behalf of the State Project Coordinator and informed that they are willing to assist the Consultant with every information within their reach to enable the project run smoothly.	Consultant appreciates the entire team of AB-RAAMP PIU
AB-RAAMP Environmental Safeguards Officer (ESO)	The ESO enquired to know if the Consultant will commence work immediately considering the short timeline of the Consultancy service	The Consultant responded by saying that their team arrived to undertake the field assessments for the RAP and ESMP. He further stated that they have 2 teams who will work simultaneously to carryout baseline studies for both assignments.
ESMP/RAP Consultant	The Consultant enquired to know if the intervention sites has been grouped into Lots.	The ESO stated that the road proposed for Upgrade has been grouped into 5 lots, the roads proposed for spot improvement are yet to be grouped in lots. This is because the works under spot improvement are still undergoing the engineering design process. He further stated that the entire roads are spread across the three senatorial districts of the states.
	He further asked to know if the engineering design process for the roads proposed for upgrading will be completed and the road grouped into lots before the draft phase of the Consultancy service so as to enable the consultant update the report, particularly the ESMP matrix tables to reflect the lots so as to make implementation by each Contractor seamless.	The ESO responded by saying that it is expected that before the draft phase, the roads that have been earmarked for Spot Improvement will be grouped into Lots and it will be shared with the Consultant for necessary actions.
ESMP/RAP Consultant	The Consultant asked to know if it is one contractor that will be contracted for the entire rehabilitation works or if the intervention works will be contracted per Lot.	The Project Engineer stated that the evaluation process is still ongoing. However, the evaluation is done on Lot basis. He further stated that some Contractors sent in EOIs for more than one lot. Additionally, he said that the contraction is dependent on the outcome of the evaluation. Lastly, he mentioned that it is possible that one Contractor may be contracted for two lots.
RAP Consultant	The Consultant inquired to know if the design consultants are available to assist the ESMP consultant during the field visits and if the project can arrange for a meeting with the design consultants	The PC stated that the design consultants are on ground and have been notified that they will work in collaboration with the ESMP Consultant. He further stated that the ESMP consultant can meet with the design consultant for the Upgrade works immediately after the meeting since he was available at the SPIU office at the time.
ESMP/RAP Consultant	The Consultant requested for an additional documentation i.e. Engineering designs for the spot improvement and cross drainage works	The PC notified the team that he will push for it to be ready as soon as possible to ensure the ESMP consultants have all they need to work efficiently

STAKEHOLDER	QUESTIONS/CONCERNS/SUGGESTIONS	RESPONSE
AB-RAAMP ESO	The ESO enquired to know when the draft reports (ESMP and RAP) will be ready.	The Consultant stated that according to the ToR and their work plan for the assignment, the draft is due by the 6 th week. Hence the team will work assiduously to ensure the project gets their expected deliverables timeously.
RAP Consultant	Enquires to know the nature and magnitude of assets within the ROW of the roads.	The ESO informed the team that the that assets are few and, in most cases, they comprise of few crops which extended into the road from farmlands, building fences, pavements, etc.
ESMP/RAP Consultant	Enquired on the set back and the standard road width the project design shall adopt for the roads	The engineer clarified that for the roads, the carriageway shall be 6m, with 2m road shoulders (1m on each side) and 2m for drainage (1m on both sides) totalling 10m.
ESMP Consultant	The Consultant enquired to gain clarity on the cross drainages intervention. He enquired to know if an E&S assessment has been conducted for the ESMP since it was not included in the scope of the ESMP but only in the RAP.	The ESO explained that an ESMP has been prepared for the cross drainages intervention and that the RAP shall inform if there will be any compensations for the CDS interventions. So, the focus for CDS is in the aspect of RAP and not ESMP.
RAP Consultant	The Consultant asked the AB-RAAMP PIU to assist in the grouping of the roads to enhance their itinerary since they have better knowledge of the axis, proximity and LGAs where the roads are situated.	The ESO responded by saying that the he and the engineer in the AB-RAAMP will assist the Consultant in the grouping since they have better knowledge of the roads and access to the communities.
ESMP Consultant	The Consultant requested for a list of security prone villages if there are any. He further stated that this information is required for the safety of the team.	The SPIU stated that Abia State is a very peaceful state. The team further informed that to the best of their knowledge, there is no community with security challenges and the entirety of the project locations are accessible.
ESMP Consultant	The Consultant requested for a copy of the signed contract to be shared to the team and also enquired on how quickly payments are being processed on receipt of reports	The PC informed the team that a copy will be given to them after the meeting. He further stated that on average it takes a week for payments to be processed.
ESMP/RAP Consultant	The Consultant requested the AB-RAAMPto provide his team with and introductory letter to the MDAs or to for the PC to put a call across to the ABSMEnv/ASEPA, ABSMoL, ABSMWA to facilitate smooth consultations.	The PC stated that he will visit the ministries to establish contact so as to chart the path for further consultations with the Consultant team before commencement of field works.

In the absence of any other concerns and remarks, the meeting was concluded with an exchange of pleasantries between the Consultant team and the AB-RAAMP PIU.