

EXECUTIVE SUMMARY

This Executive Summary provides a general overview of the proposed Subic-Clark Railway Project (SCRP) and its components and purpose; briefly describes the Project’s Environmental Impact Assessment (EIA) Process including the legal and institutional framework that exist in the Philippines which needs to be followed for obtaining viability of the project; summarizes the key environmental impacts and management plans during the pre-construction, construction and operation stage of the proposed project as well as to formulate the measures for mitigating those environmental impacts at various stages of the project.

A. Project Fact Sheet

Project Name	PROPOSED SUBIC – CLARK RAILWAY PROJECT (SCRP)		
Project Location			
	Province	City / Municipality	Barangays
	Zambales	Olongapo City	Old Cabalan New Cabalan
		Subic	Batiawan
	Bataan	Hermosa	Tipo Mabiga Sacrifice Valley
		Dinalupihan	Bangal Roosevelt San Pablo Pinulot Naparing Colo San Benito Maligaya Jose C. Payumo Jr. Luacan San Ramon Santo Niño New San Jose Old San Jose Pagalanggang Pagasa Palmayo Saguing
	Pampanga	Floridablanca	Bodega Dampe Pabanlag Old Pandaguirig Pandaguirig Calantas Palmayo
			Planas Pio Jalung Manibuog Pasig Santa Cruz Babo Pangulo Paralaya
		Angeles City	Cuayan Anunas
		Mabalacat City	Poblacion San Joaquin

Project Type	Railway Project (Freight and Passenger Service)
Project Size	Total SCRП Alignment: 71.13 kilometers
Project Components	<ul style="list-style-type: none">• SCRП Alignment<ul style="list-style-type: none">✓ Mainline (64.19-km single track railway and serves as the backbone of the railway system)<ul style="list-style-type: none">• Segment 1 - Subic Logistics Terminal to Dinalupihan Portal of Tipo Tunnel (10.30 kilometers),• Segment 2 - Dinalupihan Portal of Tipo Tunnel to Floridablanca Passing Loop (22.20 kilometers),• Segment 3 - Floridablanca Passing Loop to Future Porac Station (15.60 kilometers), and• Segment 4 - Future Porac Station to Clark Logistics Terminal (16.09 kilometers).✓ Spur Line (6.94-km single track railway)✓ 3 Freight Terminals<ul style="list-style-type: none">• Subic NCT Terminal for containerized cargoes• Subic Logistics Terminal for noncontainerized cargoes• Clark Logistics Terminal for both containerized and noncontainerized cargoes✓ 5 Passenger Stations (future)<ul style="list-style-type: none">• Subic, Dinalupihan, Floridablanca, Porac, Clark✓ Depot (inside the Clark Logistics Terminal)<ul style="list-style-type: none">• stabling tracks• locomotive maintenance yards• freight car maintenance yards• refueling track• temporary stabling of freight cars• control center and communication room• substation• generator room• oil and fuel storage area• motor pool area• water sewage system• garbage shed area• maintenance workshops for light and heavy maintenance• tracks maintenance shop• wheel truing machine area• electronics/electrical repair shop• laboratory• warehouses for storage of spares and consumables, tools, equipment
Project Cost	Php 50.031 Billion
Profile of the Proponent	
Name of the Proponent	BASES CONVERSION AND DEVELOPMENT AUTHORITY (BCDA)
Address	2/F Bonifacio Technology Center, 31st Street corner 2nd Avenue, Bonifacio Global City, Taguig, 1634 Metro Manila
Name of Authorized Representative	MR. VIVENCIO B. DIZON President and Chief Executive Officer
Contact Details	(02) 8575-1789
Profile of the EIA Preparer	
Name of the EIA Preparer	MR. DENNIS S. TOJOS
Contact details	0917-858-7748

Background of the Proposed SCRP

In 2017, President Rodrigo Duterte spearheaded the “Build! Build! Build!” Program, which seeks to accelerate public infrastructure expenditure and develop industries that will reduce poverty, encourage economic growth and countryside development, create jobs, and improve the lives of Filipinos.

The Subic-Clark Railway Project is one of the flagship projects under the “Build! Build! Build!” Program, which was approved by the National Economic and Development Authority (NEDA) Board in 2018. The project is expected to deliver high economic returns, to decongest Metro Manila, and to support current industrial activities and the potential demand for freight services along the Subic-Clark Corridor.

The SCRP, a joint project of the Department of Transportation (DOTr) and the Bases Conversion and Development Authority (BCDA), is a component of the PNR Luzon Railway System Development Framework providing initial freight service between the Subic Bay Freeport Zone (SBFZ) and the Clark Freeport Zone (CFZ). The Project will traverse six (8) Municipalities and Cities: Angeles City, Mabalacat City, Porac, and Floridablanca in Pampanga, the Municipalities of Dinalupihan and Hermosa in Bataan and Olongapo City and the Municipality of Subic in Zambales. In due course, the railway will be extended to New Clark City (NCC), formerly called Clark Green City (CGC), a new metropolis currently being developed by the BCDA.

The initial implementation phase of the SCRP focuses on the freight rail service between SBFZ and CFZ. Subsequent implementation phases will be (a) the addition of a passenger rail service between SBFZ and CFZ, and (b) the eventual extension of the passenger and freight rail service to NCC and Tarlac City (ultimate phase).

The SCRP will implement a turnkey design-build process where an independent consultant is hired for the design, and a contractor to build it. A design and build project seek to separate the design from the construction and implementation process. By previously creating a conceptual design, the preliminary studies and technical specifications are tailored to the requirements of the project, so that bidders interested in constructing the project will have enough information and adequate specifications to prepare their proposals accordingly.

B. Legal And Institutional Framework On EIA

Any private or public projects or activities which are likely to have foreseen adverse effects on the natural and social environment are subject to the PEISS. The list of laws and guidelines related to PEISS and ADB are shown in **Table ES-1**.

Table ES-1: Important Laws and Manuals of PEISS

Laws and Regulations of Environmental Impact Assessment (EIA)
• Presidential Decree No. 1152 (1977): Philippines’ Environmental Code. Comprehensive environmental management with mitigation measures were addressed and concept of the environmental impact assessment was introduced for the first time.
• Presidential Decree No. 1586 (1978): PEISS was established to conduct EIA study for the environmentally critical projects and the projects in the environmentally critical areas.
• Presidential Proclamation No. 2146 (1981) and No. 803 (1996): Proclaiming Environmentally Critical Areas and types of projects as Environmentally Critical Projects and within the scope of PEISS establish under PD No. 1586.
• DENR Administrative Order No. 30 Series of 2003 (DAO 03-30): Providing the implementing rules and regulations for the Philippine Environmental Impact Statement (EIS) System of PD No. 1586.
• DENR Administrative Order No. 2017-15: Guidelines on Public Participation under the Philippine Environment Impact Statement System
• EMB Memorandum Circular 2007-002: Revised Procedural Manual for DAO 03-30
• DENR Memorandum Circular 2010-14: Standardization of Requirement and Enhancement of Public Participation in the Streamlined Implementation of the PEISS

<ul style="list-style-type: none">• EMB Memorandum Circular 2010-002: Clarification to DENR Memorandum Circular No. 2010-14 and Other EIS System Policy Issuances
<ul style="list-style-type: none">• EMB Memorandum Circular 2010-004: Guideline for Use of Screening and Environmentally Critical Area Mapping Systems
<ul style="list-style-type: none">• EMB Memorandum Circular 2011-005: Incorporating Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) concerns in the PEISS
<ul style="list-style-type: none">• EMB Memorandum Circular 2014-005: Guidelines of Coverage Screening and Standardized Requirement under the PEISS amending relevant portions of EMB MC 2007-002
Responsible Government Authorities
<ul style="list-style-type: none">• DENR - government entity responsible for the environmental administration
<ul style="list-style-type: none">• DENR-EMB - responsible for the issuance of decision-making documents such as ECC for PEISS
Environmental Impact Assessment System in the Philippines
<ul style="list-style-type: none">• The Philippine EIA Process has six (6) sequential stages: 1) Screening, 2) Scoping, 3) EIA Study and Report Preparation, 4) EIA Review and Evaluation, 5) Decision Making, and 6) Post ECC Monitoring, Validation and Evaluation/Audit stage.
Environmental Standards
<ul style="list-style-type: none">• Presidential Decree 1152, otherwise known as the “Philippine Environment Code (1977)”: Recognizes the establishment of specific environment management policies and prescribing environmental quality standards.
<ul style="list-style-type: none">• Ambient Air Quality<ul style="list-style-type: none">o Philippine Standards:<ul style="list-style-type: none">– DENR Administrative Order (DAO) No. 2000-81: Implementing Rules and Regulations of RA No. 8749 which establishes the National Ambient Air Quality Standards for suspended particulate matters (TSP, PM10), sulphur dioxide (SO2), nitrogen dioxide (NO2), carbon monoxide (CO), ozone (O3) and lead (Pb)– DAO No. 2013-13: Establishes the provisional national ambient air quality guideline values for PM2.5o International Standards:<ul style="list-style-type: none">– World Health Organization Air Quality Guidelines for PM, O3, NO2 and SO2 (2005)
<ul style="list-style-type: none">• Surface Quality<ul style="list-style-type: none">o Philippine Standards:<ul style="list-style-type: none">– DENR Administrative Order (DAO) No. 2016-08o International Standards:<ul style="list-style-type: none">– Environmental water quality standards for protecting human health, Japan DENR Administrative Order (DAO) No. 2016-08
<ul style="list-style-type: none">• Effluent Quality<ul style="list-style-type: none">o Philippine Standards:<ul style="list-style-type: none">– DENR Administrative Order (DAO) No. 2016-08o International Standards:<ul style="list-style-type: none">– IFC Indicative Guideline Values for Treated Sanitary Sewage Discharges (2007)• DENR Administrative Order (DAO) No. 2016-08
<ul style="list-style-type: none">• Groundwater Quality<ul style="list-style-type: none">o Philippine Standards:<ul style="list-style-type: none">– DENR Administrative Order (DAO) No. 2016-08– Department of Health (DOH) Administrative Order (DAO) No. 2017-0010
<ul style="list-style-type: none">• Noise<ul style="list-style-type: none">o Philippine Standards:<ul style="list-style-type: none">– National Pollution Control Commission (NPCC), Section 78, Table 1– NPCC Memorandum Circular No. 1980-002o International Standards:<ul style="list-style-type: none">– Guidelines for Community Noise, World Health Organization (WHO), 1999.

<ul style="list-style-type: none">• Vibration<ul style="list-style-type: none">- British standards BS 5228-2:2009
<ul style="list-style-type: none">• Soil Fertility<ul style="list-style-type: none">o Philippine Standards:<ul style="list-style-type: none">- Bureau of Soils and Water Management Soil Fertility Ratingo International Standards:<ul style="list-style-type: none">- Dutch Target and Intervention Values (2000)
<ul style="list-style-type: none">• Soil Contamination<ul style="list-style-type: none">- Dutch Target and Intervention Values (2000)- US EPA Regional Screening Levels (0.1)
Other Environmental Laws and Regulations Concerning the Project
<ul style="list-style-type: none">• International treaties, agreements and related documents<ul style="list-style-type: none">o Biodiversity<ul style="list-style-type: none">- Convention on Biological Diversity, 1992- Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973- Convention on Wetlands of International Importance, 1971- Convention on the conservation of Migratory Species of Wild Animals, 1983- Cartagena Protocol on Biosafety, 2000 (to the Convention on Biological Diversity)- Nagoya Protocol on Access to Genetic Resources & the Fair & Equitable Sharing of Benefits Arising from their Utilization-Supplementary Agreement to the Convention of Biological Diversityo Climate Change<ul style="list-style-type: none">- Montreal Protocol on Substances that Deplete the Ozone Layer, 1987 Vienna Convention for the Protection of the Ozone Layer, 1985- London Amendment (to the Montreal Protocol), 1990- United Nations Framework Convention on Climate Change, 1994- Kyoto Protocol to the United Nations Convention on Climate Change 1998- Paris Agreement Adopted in the 21st Session of the Conference of Parties to the United Nations Framework Convention on Climate Change, 2015- United Nations Convention to Combat Desertification, 1994o Pollution<ul style="list-style-type: none">- Basel Convention on the Control of Transboundary Movements of Hazardous wastes and their Disposal, 1992- Stockholm Convention on Persistent Organic Pollutants 2001- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemical and Pesticides in International Trade, 2004Montreal Protocol on Substances that Deplete the Ozone Layer, 1987- Historical/Cultural Heritageo UNESCO Convention Concerning the Protection of the World Cultural and National Heritage, 1972<ul style="list-style-type: none">- Forestryo International Tropical Timber Agree, 1994<ul style="list-style-type: none">- Socialo Convention on the Elimination of all Forms of Discrimination against Women, 1979o International Convention on the Elimination of all forms of racial discrimination 1965o International Covenant on Civil and Political Rights 1976o International Covenant on Economic, Social and Cultural Rights 1976o Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment 1987o Convention on the Rights of the Child 1990o International Convention on the Protection of the Rights of all migrant Workers and members of their families, 1996o International convention for protection of all persons from enforced Disappearance 2010o Convention on the Rights of Persons with Disabilities 2008o Historical/Cultural Heritage

<ul style="list-style-type: none">- UNESCO Convention Concerning the Protection of the World Cultural and National Heritage, 1972o Forestry<ul style="list-style-type: none">- International Tropical Timber Agree, 1994o Social<ul style="list-style-type: none">- Convention on the Elimination of all Forms of Discrimination against Women, 1979- International Convention on the Elimination of all forms of racial discrimination 1965- International Covenant on Civil and Political Rights 1976- International Covenant on Economic, Social and Cultural Rights 1976- Convention against Torture and Other Cruel, Inhuman or Degrading Treatment or Punishment 1987- Convention on the Rights of the Child 1990- International Convention on the Protection of the Rights of all migrant Workers and members of their families, 1996- International convention for protection of all persons from enforced Disappearance 2010- Convention on the Rights of Persons with Disabilities 2008• National Strategy and Plan relevant to Environment and Social Consideration<ul style="list-style-type: none">o Biodiversity<ul style="list-style-type: none">- Philippines: National Biodiversity Strategy and Action Plan (NBSAO) 1997- Philippine Biodiversity Conservation Priorities, 2002- A National Wetland Action Plan for Philippines 2011-2016- Philippine Plant Conservation Strategy and Action Plan 2003o Climate Change<ul style="list-style-type: none">- Second National Communication Plan on Climate Change- Philippine Energy Plan 2009- 2030- Philippine Strategy on Climate Change Adaptation 2010-2022- National Framework strategy on Climate change 2010 - 2022- National Climate Change Action Plan, DILG Convention on the Elimination of all Forms of Discrimination against Women, 1979o Social<ul style="list-style-type: none">- Philippine Development Plan 2017-2022- Philippine Environmental Partnership Program- Government Poverty Reduction Programs and Plans- Philippine Plan for Gender responsive Development Plan 1995-2025• National Plan of Action for Children 1991 22 point platform and policy Pronouncements on Labor and employment 20	<ul style="list-style-type: none">• Other related Laws and Regulations<ul style="list-style-type: none">o Biodiversity<ul style="list-style-type: none">- Republic Act (RA) No.7586 (1992), National Integrated Protected Areas System (NIPAS) Act- RA No. 9147 (2001), Wildlife Resources Conservation and Protection Act- Executive Order (EO) No. 247, Prescribing Guidelines and Establishing a Regulatory Framework for the Prospecting of Biological and Genetic resources, there by-products and derivatives for Scientific Purposes and for other Purposes- DENR Administrative Order (DAO) No. 2004-15 Establishing the List of Terrestrial Threatened Species and their Categories and the List of other Wildlife species pursuant to RA 9147 otherwise known as the Wildlife Resources and Conservation Act of 2001- DAO 2007-24, Establishing the National List of Threatened Plants and their categories and the List of other Wildlife Specieso Climate Change and Disaster Risk Reduction<ul style="list-style-type: none">- RA 9729 (2009), Climate Change Act- Climate Change Commission (CCC) AO No. 2010-01, IRR of RA 9729
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- EO No. 174, Institutionalizing Philippine Greenhouse Gas Inventory Management and Reporting System
 - RA 10121 (2010), Philippine Disaster Risk and Management Act
 - RA 10174 (2012), People's Survival Fund
 - EMB Memorandum Circular (MC) 2011-005, EIA Technical Guidelines Incorporating Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA)
- concerns
- o Pollution Control (Water)
 - PD No. 1067 (1976), Water Code
 - RA 9275 (2004), Clean Water Act
 - DAO No. 2005-10, IRR of the Clean Water Act
 - o Pollution Control (Waste)
 - RA No. 6969 (1990), Toxic Substances, Hazardous and Nuclear Wastes Control Act
 - PD No. 856, Sanitation Code
 - DAO 2006-10, Guidelines on the Categorized Final Disposal Facilities
 - DAO 2006-09, General Guidelines on the Closure and Rehabilitation of Open Dumpsites and Controlled Disposal Facilities
 - DAO 2013-22, IRR of RA 6969
 - RA 9003, Ecological Solid Waste Management Act
 - DAO 1994-28, Interim Guidelines for the Importation of Recyclable Materials containing Hazardous Substances
 - DAO 1997-28, Amending Annex A of DAO 1994-28
 - DAO 2001-34, IRR of RA 9003
 - o Forestry
 - Presidential Decree (PD) No. 705 (1975), Forestry Reform Code
 - PD 953 (1976), Requiring the planting of trees in certain places and penalizing the unauthorized cutting, destruction, damaging and injury of certain trees, plants, and vegetation
 - EO No. 193 s. 2015, Expanding the Coverage of the National Greening Program (NGP)
 - o Historical/ Cultural Heritage
 - RA No. 10066 (2009), Providing for the Protection and Conservation of the National Cultural Heritage, Strengthening the National Commission for Culture and Arts (NCCA) and its Affiliated Cultural Agencies and for Other Purposes
 - RA No. 10086 (2010), Strengthening Peoples' Nationalism through Philippine History by changing the nomenclature of the National Historical Institute into the National Historical Commission of the Philippines (NHCP), Strengthening its powers and functions, and for other purposes
 - Permits to be Obtained for the Project Operation
 - o NHCP Endorsement on Historical Structures (Old PNR structures)
 - o Tree Cutting permit
 - o Wastewater Discharge Permit
 - o LLDA Clearance for Development Projects
 - o Permit To Operate for Power Generator Sets (APSI)
 - o ECC for Construction Work Areas/Batching Plants
 - o Quarry Permit
 - o Permit for structures over water bodies

C. EIA Process Documentation

EIA Team

The EIA team is composed of the following:

Name	Field of Expertise
1. Dennis S. Tojos	Geology
2. Rodolfo A. Romarate II	Terrestrial and Freshwater Ecology
3. Jan Julio A. Espiritu	Air Quality
4. Lorelaine C. Geografo	Water Quality
5. Felicidad S. Suner	Socio-economic Survey
6. Ramil A. Cruz	Environmental Planning

EIA Schedule

The EIA Study was conducted for a period of eighteen (18) months commencing from the conduct of Information, Education and Communication (IEC) and Public Scoping activities. Public Scoping was conducted on February 11, 12, 15, 17 and 21, 2020 within the project site with different venues to cover three (3) Provinces, namely: City Hall, Mabalacat City, Pampanga, Building No. 225 Conference Room, SBMA, Zambales and Covered Court of Brgy. Naparing, Dinalupihan, Bataan. Data collected were processed, analyzed, and evaluated for impact assessment and formulation of Environmental Management Plan (EMP) and Environmental Monitoring Plan (EMoP). The data and information were written into an EISR and the final version of the EIS will be submitted to the EMB-Central Office for ECC application. The major activities undertaken to complete the EIA were listed in **Table ES-2**.

The overall schedule of activities is presented as follows:

Table ES-2: EIA Activities Undertaken

Activities	Date
*IEC and Public Consultation	October 28, 2019 to August 27, 2020
*Public Scoping	February 11, 12, 15, 17, and 21, 2020
Primary and Secondary Data Gathering	
Geology and Geological Hazards	March 2021
Freshwater Quality	January 13 & 28, 2021
Ambient Air Quality	February 26–27, 2021
Noise Level	March 1–2, 2021
Terrestrial Ecology	January 14-18, 2021
Perception Survey	June 2019 – February 2020
Preparation of EISR	October 2020 – May 2021
Submission of EISR to EMB Central Office	May 18, 2021
Public Hearing	To be scheduled

***Note: Documentations of the public engagement activities are attached as Appendix F.**

Summary of Public Engagements

Type of Consultation	Location	Concerns
Socio-Economic Survey	Hermosa, Bataan	<p>A total of 132 affected households in the area but only one hundred five (105) household were interviewed from three barangays – Tipo, Mabiga ang Sacrifice Valley, majority (96%) of which come from Barangay Tipo.</p> <p><i>Perception on the Project</i></p> <p>Majority (93%) of the respondents have heard of the SCRP, mostly from their barangay officials (76%). For those who have heard about the project, 54% understood that a railway or subway will be built in their locality and that some of them will be affected. Majority (70%) knew that the implementing agency is the government or BCDA.</p>
Focused Group Discussion	Brgy. Tipo, Hermosa, Bataan	Road usage of men and women; safety and security; project impacts on women; livelihood opportunities for women.
LIAC Meeting	Hermosa, Bataan	LGU Hermosa requested that the relocation of Informal Settlers Family (ISFs) in their Municipality be coordinated with the National Housing Authority (NHA).
Public Consultation		<ul style="list-style-type: none">• Location of houses to be displaced and structures to be affected• BCDA Proof of ownership• Concerns about the payment of taxes• Start date of project development• Compensation for the affected houses, land, and crops
Socio-Economic Survey	Mabalacat, Pampanga	<p>The study area consists of 37 affected households, 34 of which have mango trees and/or other crops within the Drop Zone of BCDA. There are 10 houses within the zone – seven owned by households who also have crops, and three without crops.</p> <p><i>Perception on the Project</i></p>

		Majority (95%) of the respondents have heard of the SCRP - mostly (67%) from barangay officials. Likewise, majority (79%) knew that a railway project that will connect Clark and Subic will be built and that the implementing agency is BCDA according to 66% of the respondents. Amusingly, 15% reported JICA as the implementer since JICA recently conducted surveys in the same area for another project.
Focus Group Discussion	Brgy. Dolores, Mabalacat, Pampanga	Road usage of men and women; safety and security; project impacts on women; livelihood opportunities for women.
First Public Consultation	Mabalacat, Pampanga	Hiring of local employees from affected communities
Second Public Consultation		<ul style="list-style-type: none">• Composition and function of the Local Inter Agency Committee (LIAC)• Non-inclusion of trees and crops in the in the FDSC survey• Improvements in the affected area/community
Socio-Economic Survey	SBMA	<p>There are nine businesses and one government agency surveyed in the project area.</p> <p><i>Perception on the Project</i></p> <p>Majority (93%) of the respondents have heard of the SCRP, mostly from their barangay officials (76%). For those who have heard about the project, 54% understood that a railway or subway will be built in their locality and that some of them will be affected. Majority (70%) knew that the implementing agency is the government or BCDA.</p>
Public Consultation	17 February 2020, 2:12 PM - 3:34 PM Bldg. 225 Conference Room, SBMA, Zambales	<ul style="list-style-type: none">• SBMA raised if BCDA have conducted public consultations with Indigenous People groups• Proposed Tipo tunnel is “highly extractive” as raised by SBMA• SBMA suggests to locate the end line of Tipo area due to

		<p>its bigger area and won't hinder the growth of wharf</p> <ul style="list-style-type: none">• Number of rail tracks, rail road cars to be constructed• SBMA suggested that BCDA should look into the cost and benefit of building SCR• SBMA recommended to consider "minimizing the margin or error"• BCDA should consider the "economics, viability and positioning" of SCR to maximize its potential• BCDA should consider taking out the possible "double-handling" of cargoes in the SCR• Subic already has a "limited berthing capacity."• Will BCDA compensate for their possible economic losses• Philippine Coastal Storage and Pipeline Corp.: easing "the traffic of petroleum tank trucks."; SCR can have possible impacts when it comes to environmental safety such as fumes, flammable gas, and electric sparks; BCDA should consider these safety concerns; BCDA should consider the "pipeline easement along the airport up to lady pier;• Subic Bay International Terminal Corporation: possible effect of the SCR in their operations; was the presented alignment is the final alignment; concerns in tank farms of the affected company.
Public Scoping	23 September 2020, 2:10 PM – 3:23 PM Google Meet	<ul style="list-style-type: none">• Possible impacts on flooding• Land acquisition concerns, mainly the compensation to be given to affected households• Price of the tree/s
Public Scoping	29 September 2020, 2:05PM – 3:38 PM Google Meet	<ul style="list-style-type: none">• Alternative sites for the project to be added to the EIS Report• Consider the JICA Study in the reclassification of land use for SCRP

		<ul style="list-style-type: none">• Coordinate with the Pastolan Aetas (Indigenous Peoples) regarding their affected land• Review the Presidential Proclamation No. 926, otherwise known as Subic Watershed as Forest Reserve, and the Protected Area Management Plan of SBMA
Public Scoping	17 November 2020, 10:32AM to 12:00PM Subic Techno Park, Subic Bay Freeport Zone, Zambales	<ul style="list-style-type: none">• Concern over traffic congestion along Subic Techno Park considering the proposed SCRCP alignment will traverse the only road that connects the Park to Argonaut Highway• Equipment used inside the Park are very sensitive to vibrations• Dust concerns• Pollution Control Officers expressed their disagreement over the location of the Subic Logistics Terminal, which will be on a Mangrove area, and suggested a different location if possible.

The COVID-19 pandemic and the strict lockdown measures caused temporary disruption on the preparation of the EIS report. The gathering of baseline and secondary data were delayed since the provinces of Bataan and Pampanga were placed under strict community quarantine and needed to be extended.

Most of the local government units (LGUs) in Pampanga and Bataan are adopting work-from-home and skeleton workforce arrangements consistent with IATF resolutions to minimize the threat of COVID-19 exposure to its employees and clients with health issues. Thus, workers are discouraged to engage in personal contact as well as prolonged face-to-face interaction with employees and clients.

There were restrictions in mobility due to enforcement strict lockdown in some affected areas within the project site, hence, the proponent opted to conduct virtual public consultations with different stakeholders. Virtual public consultations provided an opportunity for affected residents and stakeholders to easily attend and participate in the discussions, and have their questions, issues and concerns heard by our team.

EIA Study Area

Annex 2-2 of the Revised Procedural Manual of DAO 03-30 (Implementing Rules and Regulations of the Phippine Environmental Impact Statement System) states that the Direct Impact Area (DIA) is defined as the area where ALL project facilities are proposed to be constructed/situated and where all operations are proposed to be undertaken. As such, the entire 71.13-kilometer SSCRCP alignment property and the location of the other components are the DIAs of the Project while the Indirect Impact Area (IIA) covers up to 1-kilometer radial distance from the alignment. Further, the IIA will cover the other barangays within the host LGUs and nearby LGUs who will benefit from the rapid economic growth in the region and the entire country. The DIAs are more accurately defined in **Table ES-3** based on the guidelines as per Section 10 of DAO 2017-15. The IIAs are more accurately established during post-ECC monitoring.

Table ES-3: Direct Impact Areas of the Project

	Criteria	Relevance to the Project
DIA for Air Quality Impacts	<ul style="list-style-type: none">• Areas with project Ground Level Concentrations (GLCs) of emissions higher than the ambient standard based on air dispersion/transport modeling studies (worst case scenario).	<ul style="list-style-type: none">• Commercial, residential and agricultural areas adjacent to the SCRП alignment.
DIA for Water Quality and Quantity Impacts	<ul style="list-style-type: none">• The extent of water body areas where the water quality are projected to exceed the ambient standards based on relevant worst case scenarion discharge modeling studies.• Areas where there will be disturbance of habitat (e.g. freshwater, riparian or marine ecology).• Areas where there are existing users of the same natural resources (e.g. water) that the proposed project will be using.	<ul style="list-style-type: none">• River crossings of the SCRП alignemnt.• Subic Bay being the nearest marine water body to the spur line of the SCRП.
DIA for Impacts on Land	<ul style="list-style-type: none">• Area where there will be disturbance of habitat.	<ul style="list-style-type: none">• Commercial, residential and agricultural areas along and adjacent to the SCRП alignment.
DIA for Impacts on People	<ul style="list-style-type: none">• Directly affected areas based on the results of the socio-economic impact assessment studies including ancestral domain of indigenous communities that may be affected, if any.	<ul style="list-style-type: none">• The three (3) cities and five (5) municipalities that will be traversed by the SCRП (see Table PD-1).

EIA Methodologies

The EIA for the proposed SCRП conforms to the Revised Procedural Manual for DAO 2003-30 and DAO 2017-15 in the conduct of the following activities, to wit: (i) Project Scoping, (ii) collection of primary and secondary data, (iii) identification/prediction/assessment of environmental impacts, (iv) formulation of EMP and the (v) development of EMoP.

The baseline information are mainly primary and secondary data which were obtained from the local government units (LGUs) and other government agencies. Data collected were based from the approved EIA Scoping and Screening Form. **Table ES-4** shows the pertinent data, sources, and methodologies used for the conduct of EIA Study for the proposed SCRП.

Table ES-4: The EIA Methodology

Environmental Components	Methodology and Approach on Baseline Survey	Methodology and Approach on Impact Assessment
LAND		
Land Use and Classification	<ul style="list-style-type: none">• Review of Comprehensive Land Use Plan (CLUP) of Olongapo, Subic in Zambales, Hermosa and Dinalupihan in Bataan, Floridablanca, Porac and Mabalacat and Angeles in Pampanga	<ul style="list-style-type: none">• Assessment of the compatibility of the proposed SCRП vis-à-vis approved land use plan and zoning classification.

Geology	<ul style="list-style-type: none">• Conduct of field surveys• Review of available reports, geologic literature and information from Mines and Geosciences Bureau (MGB), Philippine Institute of Volcanology and Seismology (PHIVOLCS), Philippine Atmospheric, Geophysical and Astronomical Services (PAGASA), and National Mapping and Resource Information Authority (NAMRIA)	<ul style="list-style-type: none">• Assessment of construction and operation impacts based on the construction and operation activities of the proposed SCRP, and the susceptibility of the project area to natural hazards.
Pedology	<ul style="list-style-type: none">• Review of existing literature and maps of the project area.• Conduct of field surveys and collection of soil samples	<ul style="list-style-type: none">• Assessment of impacts based on the construction and operation activities of the proposed SCRP to the existing environment.
Terrestrial Ecology	<ul style="list-style-type: none">• Conduct field surveys at the proposed Project site.	<ul style="list-style-type: none">• Assessment of impacts based on the construction and operation activities of the proposed SCRP to the existing ecosystem
WATER		
Hydrology and Hydrogeology	<ul style="list-style-type: none">• Review of CLUPs of the host LGUs and other secondary data from existing literature and maps of the project area from MGB, NAMRIA, and PHIVOLCS.• Conduct of field surveys	<ul style="list-style-type: none">• Assessment of impacts based on the construction and operation activities of the proposed SCRP to the existing environment and the susceptibility of the project area to flooding.
Water Quality	<ul style="list-style-type: none">• Collection of groundwater and surface water samples for analysis of physical, chemical, microbiological, micro-nutrient and heavy metal analyses at ELARSI, Inc In Quezon City. Levels of pH, Color, temperature, BOD₅, DO, COD, oil and grease, TSS, chloride, ammonia, nitrate, phosphates, and thermotolerant coliform in ten (10) sampling stations.• Assessment of groundwater quality and surface water quality using the Philippine National Standards for Drinking Water of 2017 (PNSDW, 2017) and Water Quality• Guidelines and General Effluent Standards of 2016 (DAO 2016-08), respectively.	<ul style="list-style-type: none">• Assessment of impacts based on the construction and operation activities of the proposed SCRP to the existing environment.
Freshwater Ecology	<ul style="list-style-type: none">• Collection of primary and secondary data.• Characterization of trophic composition at ten (10) sampling stations in the rivers and creeks along the alignment. Benthic organisms were collected from the sediments and strained using various mesh size sieves and preserved using alcohol.	<ul style="list-style-type: none">• Assessment of impacts based on the construction and operation activities of the proposed SCRP to the existing ecosystem.
AIR		
Meteorology and Climatology	<ul style="list-style-type: none">• Collection and review of existing literature and maps of the project area from both Subic Bay and CIA Stations of PAGASA.	<ul style="list-style-type: none">• Assessment of impacts based on the construction and operation activities.

		<ul style="list-style-type: none">• Projection of monthly average temperature and rainfall and frequency of extreme events under medium range emission scenario using the data from PAGASA Climate Change in the Philippines, 2011
Air Quality and Noise Level	<ul style="list-style-type: none">• Conduct of ambient air quality monitoring at ten (10) established sampling stations to measure the Nitrogen Dioxide (NO₂), Sulfur Dioxide (SO₂), Total Suspended Particulates (TSP), Particulate Matter of less than 10 microns (PM10), Particulate Matter of less than 2.5 microns (PM2.5) concentration in the project area and its vicinity.• Conduct of Noise level measurement during morning, daytime, evening, and nighttime using direct-reading sound level meter in ten (10) established sampling stations	<ul style="list-style-type: none">• Assessment of impacts based on the construction and operation activities.

D. EIA Summary

D.1 Summary of Project Alternatives

Alignment Alternatives Options

The alignment is 71.13 kilometers long and is located in the western section of Central Luzon running on an exclusive ROW parallel to SCTEX with some sections adjacent to it. It is divided into two (2) major sections namely, the Mainline and the Spur Line. The Mainline is further divided into four (4) segments.

Segment 1

Three (3) options were considered for Segment 1. Each option is evaluated based on structure requirements due to topography, ROW requirements, impact to existing communities in the affected area, and impact to ancestral lands (for Aetas in SBFZ).

- a. Option 1 – The proposed 11-km segment will traverse underneath Kalayaan Heights in SBFZ and the outskirts of Olongapo City (in Old Cabalan and New Cabalan). It will terminate east of SCTEX Tipo Interchange inside Roosevelt National Park.
- b. Option 2 – The proposed 10-km segment will pass underneath Kalayaan Heights in SBFZ and Tipo in Hermosa. Similar to Option 1, it will terminate east of SCTEX Tipo Interchange.
- c. Option 3 – The proposed 12-km segment will pass through Binictican Heights, through portions of the ancestral land of the Aetas in SBFZ, and through agricultural lands in Hermosa. Unlike the previous two (2) options, this option is located south of Subic-Tipo Expressway and SCTEX and it will terminate near the proposed SCTEX Mabiga Interchange in Dinalupihan.

Figure ES-1. Segment 1 Alignment Options



Component	Parameters	Option			Remarks
		1	2	3	
Segment 1	Structure Requirements	Moderate	High	High	Minimal impacts on ROW, existing communities, and ancestral lands make Option 2 the best alignment for Segment 1.
	ROW Requirements	High	Low	High	
	Impact on Existing Communities	High	Low	low	
	Impact on Ancestral Lands	Low	Low	Low	

Segment 1 starts at-grade at the Subic Logistics Terminal in SBFZ. It will run adjacent and parallel to Maritan Highway until it reaches the start of Subic-Tipo Expressway. The 7-40km tunnel section (Tipo Tunnel) starts just below the expressway (Subic Portal) and ends east of SCTEX Tipo Interchange (Dinalupihan Portal) (Figure ES-2). It will be constructed using New Austrian Tunneling Method (NATM).

Figure ES-2. Tipo Tunnel



Segment 2 and Segment 3

Two (2) options were considered for Segment 2 and Segment 3. Each option is evaluated based on structure requirements due to topography, ROW requirements, and impact on existing communities

- a. Option 1 – The proposed 44-km segment follows the existing alignment of SCTEX and the railway section is adjacent to it.
- b. Option 2 – The proposed 38-km segment runs parallel to SCTEX and passes through the agricultural lands of Dinalupihan, Floridablanca, and Porac. Some sections follow the existing alignment of SCTEX and are adjacent to it, particularly between Dinalupihan and Floridablanca.

Figure ES-3. Segment 2 and Segment 3 Alignment Options



MAP SOURCE: GOOGLE EARTH

Component	Parameters	Option		Remarks
		1	2	
Segment 2 and Segment 3	Structure Requirements	High	Moderate	Option 1 almost eliminates the need to acquire ROW due to available space along SCTEX ROW that can be used for the construction of the railway. However, the complex alignment and structural design of SCTEX, particularly between Tipo and Dinalupihan and between Floridablanca and Porac, will require the system to construct tunnels of up to 11 kilometers in length considering the design criteria. Modifying the design criteria to follow SCTEX design could severely impact rolling stock requirements and rate of wear-and-tear of track, resulting to higher operating and maintenance costs.

	ROW Requirements	Low	Moderate	Option 2 provides balance to these requirements by optimizing the ROW and structure requirements along the segment. Some ROW sections along SCTEX will be used by SCRP as long as design criteria are met. Also, construction of tunnel structures is avoided by following the required terrain configuration to minimize construction costs. The alignment is also located in agricultural lands to minimize ROW acquisition on existing communities. Thus, Option 2 is selected as the better alignment for Segment 2 and Segment 3.
	Impact on Existing Communities	Moderate	Low	

Segment 4

Four (4) options were considered for the alignment inside CFZ. Each option is evaluated based on structure requirements due to topography, ROW requirements, impact on existing structures in CFZ, accessibility to CRK, impact on CRK MDP, potential rail-air intermodal system, and potential integration with PNR Luzon System.

- a. Option 1 – The proposed segment will cross SCTEX and M.A. Roxas Highway near the Friendship Gate of CFZ. It will then proceed along the eastern boundary of CCAC and runs parallel to the existing CRK Runway 02R/20L and to SCTEX. The alignment is very close to the location of the proposed third runway in the CRK MDP and will greatly impede its operation. The alignment also segregates the proposed area for airport logistics and maintenance facilities in the CRK MDP. The Clark Logistics Terminal and Depot will be located in this area since the proposed airport logistics and maintenance facilities will have to be transferred, most probably on the other side (western) of the railway alignment.
- b. Option 2 – The proposed segment is very similar to Option 1 and will also cross SCTEX and M.A. Roxas Highway near the Friendship Gate of CFZ. It will then also proceed along the eastern boundary of CCAC and runs parallel to the existing CRK Runway 02R/20L, except that the

- alignment is now adjacent to SCTEX (although it avoids crossing its Clark South Interchange and Mabalacat Interchange). The Clark Logistics Terminal and Depot will be located between the proposed CRK Interchange and existing Clark North Interchange of SCTEX.
- c. Option 3 – The proposed segment will also cross SCTEX and M.A. Roxas Highway near the Friendship Gate of CFZ. It will then follow the alignment of M.A. Roxas Highway and Gil Puyat Avenue along the western boundary of CCAC. The alignment runs parallel to the proposed second runway in the CRK MDP which will dictate the elevation of the railway. It will terminate near Sacobia River where the Clark Logistics Terminal and Depot will also be located. There is yet no physical demarcation for the CCAC western boundary which crosses several roads and residential/commercial clusters in CFZ. The area has also much higher elevation than the proposed second runway.
 - d. Option 4 – Unlike the three (3) options, the proposed segment will cross SCTEX near Sapang Bato in Angeles City. It will then cross M.A. Roxas Highway and proceeds along the same alignment and termination point as Option 3.

Figure ES-4. Segment 4 Alignment Options



Component	Parameters	Option				Remarks
		1	2	3	4	

Segment 4	Structure Requirements	Low	Low	Moderate	High	<p>Option 1 will only be possible if, in the long term, CRK will be downgraded to only two (2) runways and the location of airport logistics and maintenance facilities will be transferred to the western side of the railway alignment.</p> <p>There is yet no physical demarcation for the CCAC western boundary which crosses several roads and residential / commercial clusters in CFZ. Construction of the railway via Option 3 or Option 4 will be easy if the proposed second runway for CRK is also being constructed since the alignment for Option 3 or Option 4 runs along the western boundary of the airport. The construction becomes uncomplicated since there will be no more roads or residential / commercial clusters that will be affected. However, it is highly unlikely that the proposed second runway will be constructed in the near future. As such, the railway will have to contend with roads crossing its alignment, as well as deep cuts due to its very high elevation against the elevation of the proposed second runway.</p> <p>Option 2 is the best alignment for Segment 4.</p>
	ROW Requirements	Low	Low	Low	High	
	Impact on Existing Structures	Low	Low	High	High	
	Accessibility to CRK	High	High	Low	Low	
	Impact on CRK MDP	High	Moderate	Moderate	Moderate	
	Potential rail-air intermodal system	High	Moderate	Low	Low	
	Potential integration with PNR Luzon System	High	High	Moderate	Moderate	

Spur Line

Three (3) options were considered for this technically challenging situation. Each option is evaluated based on structure requirements due to topography and impact to existing structures inside SFS.

Figure ES-5. Spur Line Alignment Options



Component	Parameters	Option			Remarks
		1	2	3	
Spur Line	Structure Requirements	High	High	Moderate	All options will have impact on SFS with varying degree. Option 1 will require suspension of SFS operations since the alignment will directly hit the runway. Also, it will require longer tunnel length to access the NCTs. For Option 2 and Option 3, the airport may need to impose restrictions to aircrafts during construction due to shorter length available for landing and takeoff. However, similar to Option 1, Option 2 will also require longer tunnel length to access the NCTs as compared to Option 3. Option 3 will only pass along the perimeter of the airport as it exits Cubi Point. Moreover, it will only affect SFS Runway 07/25's threshold and adjacent runway equipment. Therefore Option 3 is the best alignment for this segment.
	Impact on SFS	High	High	Moderate	

Potential Passenger and Freight Demand

For both passengers and freight, the full value for the SCR can therefore only be unlocked once it is considered as part of a broader network of rail lines and multi-modal connections. Key to this will be Metro Manila, which remains the critical draw for travelers and freight, and therefore the line needs to be considered as an integral part of a broader railway network, which supports the desire-lines for travel between the Subic/Clark region and Metro Manila to the south.

D.2 Summary of the Baseline Characterization of the Project Area

The main impacts of the proposed SCRP are relocation of the residents living along the ROW; generation of dust, noise, and vibration during construction; and noise impacts on communities adjacent to the railway during operation. However, environmental and health benefits are anticipated to outweigh anticipated adverse impacts. The project will help improve the condition of traffic by providing a faster and less polluting public mass transport. **Table ES-5** presents the summary of key environmental impacts of the proposed SCRP and the corresponding management plan and mitigating measures.

The map reflecting all sampling stations for the Terrestrial Ecology, Water Quality, and Air and Noise Quality Assessment is shown in **Appendix H**.

Table ES-5: Summary of the Baseline Characterization of the Project Area

Project Activity	Potential Impact	Prevention/Mitigation/ Enhancement Measures	Target efficiency
PRE-CONSTRUCTION			
LAND			
Route survey and planning	Incompatibility with the existing land use	<ul style="list-style-type: none">• BCDA will coordinate with the lot owners, LGUs, other relevant agencies and concerned stakeholders in acquiring and/or securing the ROW	<ul style="list-style-type: none">• Targeting 100% compliance for the change in land use classification of areas utilized as part of ROW
	Potential conflict with other government infrastructure projects	<ul style="list-style-type: none">• Coordinate with BCDA, DPWH (for depot site), and other relevant agencies and develop designs with compatible, non- overlapping structures• Possible acquisition of additional private lots outside BCDA	<ul style="list-style-type: none">• Will reroute and acquire additional lots in instances of overlap with existing structures and will comply with the result of negotiations with the pertinent owners of the structures.
	Overlap with areas with CADT/CADC, or areas occupied by cultural communities or tribes	<ul style="list-style-type: none">• Coordinate with NCIP for the conduct of FBI to determine the possible overlap with CADT/CADC and/or update design to eliminate overlap	<ul style="list-style-type: none">• Will comply with the regulations of the pertinent government agencies
	The SCRP will traverse the Roosevelt Protected Landscape (RPLS), which is a component of the ENIPAS Law.	<ul style="list-style-type: none">• Coordinate with RPLS-PAMB on the issuances of the PAMB Clearance and Special Use Agreement in Protected Areas (SAPA).• Prepare a Comprehensive Development and Management Plan (CDMP) and Rehabilitation Plan in line with the application for SAPA.	<ul style="list-style-type: none">• Will comply with the requirements of RA 7586
WATER			
Impact to mangrove areas	The Subic Logistic Terminal, which is a component of the SCRP, will be constructed in the inner Subic	<ul style="list-style-type: none">• Devise an Earthballing and Transplanting Plan in coordination with the Ecology Center of SBMA to properly identify the best choice of area for replanting the trees.	<ul style="list-style-type: none">• Will target 100% compliance with the formulated Transplanting Plan for the identified trees

	Bay coastline wherein clearing of mangrove trees is inevitable		
PEOPLE			
People	Involuntary Resettlement of project affected persons (PAPs)	<ul style="list-style-type: none">BCDA will implement RAP in coordination with NHA, LGUs, and concerned stakeholders and relevant agencies that provide relocation site with complete facilities, amenities and basic services as well as livelihood for income restoration of head-of-household PAPs of ISFs.	<ul style="list-style-type: none">Resettlement of project affected persons (PAPs);Enhanced living and livelihood conditions of resettled PAFs of ISFsTargeting 100% efficiency
CONSTRUCTION			
LAND			
Land Use and Classification	Impairment of aesthetic view	<ul style="list-style-type: none">Maintain the construction site/ yards tidy and clean and rehabilitate after constructionProvide temporary screens/ walls to minimize the visual clutter.Design the project facilities to harmonize with the surrounding environment	<ul style="list-style-type: none">Target 100 percent on the protected areas
Geology/ Geomorphology	Inducement of subsidence, liquefaction, landslide, mud/debris flow	<ul style="list-style-type: none">Design and construct appropriate foundation and structures based on the combination of geotechnical, geodetic and hydrologic study, and seismicity studies, and in compliance with the National Building Code and the Structural Code of the Philippines and internationally accepted guideline.	<ul style="list-style-type: none">Will comply with the guidelines of the Building code and Structural code of the Philippines and the internationally accepted guidelines for the industry
Pedology	Degradation of soil quality (soil contamination)	<ul style="list-style-type: none">Prepare and implement solid waste management plan and proper disposal in accordance with RA 9003, hazardous waste disposal in accordance with RA 6969.	<ul style="list-style-type: none">Will target 100% at proposed maintenance area
Terrestrial Ecology	Loss of flora and fauna within ROW and Depot site	<ul style="list-style-type: none">Prior to any clearing activity, conduct 100% inventory of the affected trees along the alignment and secure tree cutting permit in compliance with DENR MC No. 2012-02.Minimize vegetation clearing to areas to be developed only and implement the tree and vegetation management plan as part of the construction planAreas not part of the development within the ROW, around the stations and depot will be prioritized for replanting activity to create buffer zone to improve wildlife habitat.	<ul style="list-style-type: none">Will target 100% in the identified vegetated areas
WATER			

Hydrology	Inducement of flooding	<ul style="list-style-type: none">• Design and install drainage to accommodate the surface water runoff from the project and avoid any flooding in the area caused by the project.• Regular inspection and prompt maintenance of the drainage system, all installed structures and facilities and improve/ enhance capacity when possible.• Elevate the tracks based on the projected flooding in the area	<ul style="list-style-type: none">• Target 100% on the identified flood prone areas
Water Quality	Degradation of surface water quality	<ul style="list-style-type: none">• Install wastewater treatment, portable sanitary facilities at construction sites/yards• Install temporary erosion ponds or silt traps around the major work areas.• Plan and implement construction activities in consideration to the water course, embankment, and wet/dry season.	<ul style="list-style-type: none">• Minimal surface water quality degradation
Marine Ecology	Impact to mangroves	<ul style="list-style-type: none">• Plan a community-based forest management program specifically for mangroves in its Socio Developmental Program and Corporate Social Responsibility projects.• Encourage mangrove rehabilitation and conservation through the establishment of ecotourism in mangrove areas. This practice is in line with the goal of community participation, protection, and management of natural resources, culture and indigenous knowledge and practices, environmental education and ethics as well economic benefits for the host communities.	<ul style="list-style-type: none">• Target 100% in the identified mangrove areas
AIR			
Air Quality	Degradation of air quality	<ul style="list-style-type: none">• Adjust construction activities in consideration to weather system, identifying periods of high winds and drought that aggravated dust transport.• Control vehicle movement maintaining the speed limit within the construction site to <10kph• Conduct regular cleaning and clearing of construction access / sites surfaces of spoils and debris from construction equipment and vehicles and wetting of ground soil in the construction site when necessary.	<ul style="list-style-type: none">• Target 100% implementation during construction phase

Noise	Increase in ambient noise level	<ul style="list-style-type: none">Plan and implement construction activities in consideration to time, duration, and scale to optimize the use construction equipment, machineries, and vehicles in accordance to the noise emission standard.Design and install effective noise barriers and absorbers along the alignment especially in areas with sensitive facilities and install noise control devices such as mufflers and noise suppressors to all construction equipment and machineries.Monitor construction noise to ensure that Lmax at sensitive areas (residences, institutions, and hotels) does not exceed 85dB(A) daytime and evening, and 80 dB(A) during nighttime.	<ul style="list-style-type: none">Target 100% implementation during construction phase
Ground vibration	Increase in ambient vibration level	<ul style="list-style-type: none">Plan and implement construction activities in consideration to time, duration, and scale to optimize the use construction equipment, machineries and vehicles. Schedule high vibration generating activities during daytime to reduce disturbance to nearby communities.Select construction equipment and machineries matching the scale of the construction and with minimal vibration generation if possible	<ul style="list-style-type: none">Target 100% implementation during construction phase

PEOPLE

People	Generation of Livelihood Opportunities and improvement of Safety	<ul style="list-style-type: none">Prioritize in hiring local qualified residents in coordination with the LGUs and employ workers in consideration to gender equality and to vulnerable group	<ul style="list-style-type: none">Will target 100% for the qualified stakeholders
	Cultural/Lifestyle Change of Indigenous Peoples	<ul style="list-style-type: none">Conduct FBI at the proposed area in accordance to the NCIP AO No. 3, 2012. If section of the depot site is within an Ancestral Domain, additional measures will be implemented in close coordination with the NCIP and LGUs.Ensure resolution of indigenous community (if any) in coordination with NCIP and LGU.	
	Change/Conflict on ROW and Impact on Public Access	<ul style="list-style-type: none">Maintain the existing public access as much as possible. However, in case of closures/barriers, disseminate information to the public, barangay and LGUs on the potential impact to the existing public access and mitigation measure through the project activities. Provide diversion route	<ul style="list-style-type: none">Target 80% implementation

		with appropriate health and safety measures. In case of any changes, prompt update on the diverted routes to the concerned communities and LGUs, assign traffic guide to provide assistance to the road users.	
	Threat to public health and safety	<ul style="list-style-type: none">• Formulation and implementation of IEC Plan to inform the affected LGU and local communities and the general public about 1) the project, project activities, duration, possible project impacts and incorporate their comments and inputs in the design, 2) the potential impact of project activities to air quality, noise, vibration, and climate change and mitigation, and safety aspects like areas that are restricted for the public, and 3) the Grievance Redress Mechanism to handle complaint/s if any.• Plan for construction sites and access route in consideration to health and safety of local communities• Install fencing of the construction site, provision of signage and posters, and guarding of the access point to ensure that the public is prevented from entering unsafe areas.	<ul style="list-style-type: none">• Will implement 100%• Target 100%• Target 90% in populated areas
	Traffic Congestion	<ul style="list-style-type: none">• Conduct Traffic Impact Assessment (TIA) and based on the results of TIA, prepare and implement Traffic Management Plan (TMP), coordinate to the concerned LGUs and transport operator/s and get their inputs and approval• Schedule transport of heavy structures during period when there are fewer vehicles on the road and posting of appropriate traffic signage and warnings.• Disseminate information to the general public, host barangays and LGUs on the potential impact of the project to the existing access and provide mitigating measures.	<ul style="list-style-type: none">• Target 100%;• Will target 100% during construction• Target 100% during pre construction phase
OPERATION			
LAND			
Land Use and Classification	Impairment of visual aesthetic	<ul style="list-style-type: none">• Maintain tree planting to minimize the visual impact of the project	<ul style="list-style-type: none">• Will follow guidelines of DENR MC No. 2012-02

Geology/ Geomorphology	Inducement of subsidence, Liquefaction, Landslide, Mud/Debris Flow, etc.	<ul style="list-style-type: none">• Conduct proper inspection and prompt maintenance checks to every single installed structure and facility and improve/ enhance capacity when possible• Conduct inspection in the event of natural hazard occurrence to assess damage of structures• Regular Coordination with the PHIVOLCS for earthquake and volcanic events to adjust the train schedule as necessary.	<ul style="list-style-type: none">• None
Pedology (Soil Quality)	Degradation of soil quality (soil contamination)	<ul style="list-style-type: none">• Strict implementation of solid waste management plan and proper disposal by an accredited contractor in accordance with RA 9003, hazardous waste disposal in accordance with RA 6969.	<ul style="list-style-type: none">• None
Terrestrial Ecology	Loss of Habitat Threat to Existence and/or Loss of Important Local Species Hindrance to Wildlife Access	<ul style="list-style-type: none">• Minimize the noise, vibration, illumination, and vehicular movement which can disturb significant fauna area.	<ul style="list-style-type: none">• Minimal disturbance to flora and fauna near bio-diversity areas
WATER			
Groundwater and Freshwater Quality	Deterioration of nearby groundwater and surface water due to discharge of untreated wastewater in stations and depot	<ul style="list-style-type: none">• Each commuter station and depot will have a sewage treatment plant (STP) and a separate treatment facility for non-sewage waste waters such as from sinks, and washings to meet the applicable effluent standards. Handling of potential contaminants during operation phase will be compliant with RA 6969.	<ul style="list-style-type: none">• None
AIR			
Acoustic Noise	Increase in ambient noise level	<ul style="list-style-type: none">• Optimize the number of train operation at night time to reduce generated noise• Provision of 2m high concrete noise barriers for about 59 km length of the alignment especially along areas identified as sensitive receptors.• Provision of noise control device such as muffler to all stationary sources (i.e. generator set)• Regular inspection and proper maintenance of trains and tracks to reduce operational noise	<ul style="list-style-type: none">• Minimal increase (i.e less than 3dB(A) in ambient noise levels confined to areas adjacent to alignment
Ground Vibration	Increase in ground vibration level	<ul style="list-style-type: none">• Regular inspection, proper maintenance and reconditioning of trains and tracks such as rail grinding, slip-slide detectors and maintenance or replacement of	<ul style="list-style-type: none">• Minimal increase in vibration levels

		suspension system, brakes and wheels	
PEOPLE			
People	Generation of job positions, opportunities for business	<ul style="list-style-type: none">• Coordinate closely with the host LGUs, specifically at the barangay level regarding hiring of regular workers to ensure that the workers being considered are legitimate residents in the area in consideration to gender equality.	<ul style="list-style-type: none">• Higher employment rates in the host cities
	Influx of ISFs	<ul style="list-style-type: none">• Install fencing and provide guards to prevent the settlement of ISFs along the ROW	<ul style="list-style-type: none">• None
	Threat to public health and safety	<ul style="list-style-type: none">• Provide security guards in all stations to direct passengers on the safe zone• Provide sanitary facilities or utilities in all stations and depot.• Implement the Occupational Health and Safety Management Plan.• Provide appropriate PPE to all personnel undertaking maintenance work.	<ul style="list-style-type: none">• Accidents may still occur, but the safety and health guidelines in place will significantly lower the exposure of workers and commuters to occupational and operational hazards, respectively.
	Traffic Congestion in the areas adjacent to the proposed stations	<ul style="list-style-type: none">• Establish a TOD Committee, which compose of the Traffic Management of LGUs, Planning Office, PNR, DPWH, and BCDA• Plan and implement TOD in consideration to the loading and unloading area and the circulation of the traffic as well as the integration of transport facility within the station.	<ul style="list-style-type: none">• Minimal traffic build-up may still occur in areas adjacent to the proposed stations
	Reduced travel time for commuters	<ul style="list-style-type: none">• Promote benefit of reduced travel time using SCRP mass transit over other modes of transportation	<ul style="list-style-type: none">• Increased number of commuters using the SCRP for transportation.